**HIGHWAY WORK PROPOSAL**

Proposal Number: Ø 1

Wisconsin Department of Transportation
DT1502 10/2010 s.66.29(7) Wis. Stats.

| COUNTY | STATE PROJECT ID | FEDERAL PROJECT ID | PROJECT DESCRIPTION | HIGHWAY |
|---|---|---|---|---|
| Milwaukee | 1060-33-81 | WISC 2015 473 | Zoo IC - Zoo Interchange Phase 2<br>Lincoln - Bluemound, 121st to 70th | USH 45 |
| Milwaukee | 1060-34-82 | | Zoo IC - IH 894 NB Auxiliary Lane<br>Oklahoma Ave to National Ave | IH 894 |
| Milwaukee | 1060-43-81 | WISC 2015 474 | East West Freeway<br>Underwood CR Prkwy & 121st St. Brdgs | IH 94 |

# ADDENDUM REQUIRED

ATTACHED AT BACK

This proposal, submitted by the undersigned bidder to the Wisconsin Department of Transportation, is in accordance with the advertised request for proposals. The bidder is to furnish and deliver all materials, and to perform all work for the improvement of the designated project in the time specified, in accordance with the appended Proposal Requirements and Conditions.

| | |
|---|---|
| Proposal Guaranty Required, $ 1,000,000.00<br>Payable to: Wisconsin Department of Transportation | Attach Proposal Guaranty on back of this PAGE. |
| Bid Submittal Due<br>Date: September 29, 2015<br>Time (Local Time): 9:00 AM | Firm Name, Address, City, State, Zip Code<br>**SAMPLE**<br>**NOT FOR BIDDING PURPOSES** |
| Contract Completion Time<br>August 30, 2018 | |
| Assigned Disadvantaged Business Enterprise Goal<br>8 % | This contract is subject to federal oversight. |

This certifies that the undersigned bidder, duly sworn, is an authorized representative of the firm named above; that the bidder has examined and carefully prepared the bid from the plans, Highway Work Proposal, and all addenda, and has checked the same in detail before submitting this proposal or bid; and that the bidder or agents, officer, or employees have not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with this proposal bid.

**Do not sign, notarize, or submit this Highway Work Proposal when submitting an electronic bid on the Internet.**

Subscribed and sworn to before me this date _____

(Signature, Notary Public, State of Wisconsin)

(Print or Type Name, Notary Public, State Wisconsin)

(Date Commission Expires)

**Notary Seal**

(Bidder Signature)

(Print or Type Bidder Name)

(Bidder Title)

**For Department Use Only**

Type of Work

Removals, excavation common, base aggregate, concrete pavement, HMA pavement, concrete barrier, concrete curb and gutter, concrete sidewalk and driveways, storm sewer, erosion control, traffic control, pavement marking, sign structures, permanent signing, lighting, ITS, traffic signals, bridges, retaining walls, noise barriers, sanitary sewer, water main.

| Notice of Award Dated | Date Guaranty Returned |
|---|---|
| | |

# PLEASE ATTACH
# PROPOSAL GUARANTY HERE

**Effective with November 2007 Letting**

## PROPOSAL REQUIREMENTS AND CONDITIONS

The bidder, signing and submitting this proposal, agrees and declares as a condition thereof, to be bound by the following conditions and requirements.

If the bidder has a corporate relationship with the proposal design engineering company, the bidder declares that it did not obtain any facts, data, or other information related to this proposal from the design engineering company that was not available to all bidders.

The bidder declares that they have carefully examined the site of, and the proposal, plans, specifications and contract forms for the work contemplated, and it is assumed that the bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality, and quantities of work to be performed and materials to be furnished, and as to the requirements of the specifications, special provisions and contract. It is mutually agreed that submission of a proposal shall be considered conclusive evidence that the bidder has made such examination.

The bidder submits herewith a proposal guaranty in proper form and amount payable to the party as designated in the advertisement inviting proposals, to be retained by and become the property of the owner of the work in the event the undersigned shall fail to execute the contract and contract bond and return the same to the office of the engineer within fourteen (14) days after having been notified in writing to do so; otherwise to be returned.

The bidder declares that they understand that the estimate of quantities in the attached schedule is approximate only and that the attached quantities may be greater or less in accordance with the specifications.

The bidder agrees to perform the said work, for and in consideration of the payment of the amount becoming due on account of work performed, according to the unit prices bid in the following schedule, and to accept such amounts in full payment of said work.

The bidder declares that all of the said work will be performed at their own proper cost and expense, that they will furnish all necessary materials, labor, tools, machinery, apparatus, and other means of construction in the manner provided in the applicable specifications and the approved plans for the work together with all standard and special designs that may be designed on such plans, and the special provisions in the contract of which this proposal will become a part, if and when accepted. The bidder further agrees that the applicable specifications and all plans and working drawings are made a part hereof, as fully and completely as if attached hereto.

The bidder, if awarded the contract, agrees to begin the work not later than ten (10) days after the date of written notification from the engineer to do so, unless otherwise stipulated in the special provisions.

The bidder declares that if they are awarded the contract, they will execute the contract agreement and begin and complete the work within the time named herein, and they will file a good and sufficient surety bond for the amount of the contract for performance and also for the full amount of the contract for payment.

The bidder, if awarded the contract, shall pay all claims as required by Section 779.14, Statutes of Wisconsin, and shall be subject to and discharge all liabilities for injuries pursuant to Chapter 102 of the Statutes of Wisconsin, and all acts amendatory thereto. They shall further be responsible for any damages to property or injury to persons occurring through their own negligence or that of their employees or agents, incident to the performance of work under this contract, pursuant to the Standard Specifications for Road and Bridge Construction applicable to this contract.

In connection with the performance of work under this contract, the contractor agrees to comply with all applicable state and federal statutes relating to non-discrimination in employment. No otherwise qualified person shall be excluded from employment or otherwise be subject to discrimination in employment in any manner on the basis of age, race, religion, color, gender, national origin or ancestry, disability, arrest or conviction record (in keeping with s.111.32), sexual orientation, marital status, membership in the military reserve, honesty testing, genetic testing, and outside use of lawful products. This provision shall include, but not be limited to the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation, and selection for training, including apprenticeship. The contractor further agrees to ensure equal opportunity in employment to all applicants and employees and to take affirmative action to attain a representative workforce.

The contractor agrees to post notices and posters setting forth the provisions of the nondiscrimination clause, in a conspicuous and easily accessible place, available for employees and applicants for employment.

If a state public official (section 19.42, Stats.) or an organization in which a state public official holds at least a 10% interest is a party to this agreement, this contract is voidable by the state unless appropriate disclosure is made to the State of Wisconsin Ethics Board.

**Effective with August 2015 Letting**

# BID PREPARATION

## Preparing the Proposal Schedule of Items

### A General

(1) Obtain bidding proposals as specified in section 102 of the standard specifications prior to 11:45 AM of the last business day preceding the letting. Submit bidding proposals using one of the following methods:

1. Electronic bid on the internet.
2. Electronic bid on a printout with accompanying diskette or CD ROM.
3. Paper bid under a waiver of the electronic submittal requirements.

(2) Bids submitted on a printout with accompanying diskette or CD ROM or paper bids submitted under a waiver of the electronic submittal requirements govern over bids submitted on the internet.

(3) The department will provide bidding information through the department's web site at:
http://wisconsindot.gov/Pages/doing-bus/contractors/hcci/bid-let.aspx

The contractor is responsible for reviewing this web site for general notices as well as information regarding proposals in each letting. The department will also post special notices of all addenda to each proposal through this web site no later than 4:00 P.M. local time on the Thursday before the letting. Check the department's web site after 5:00 P.M. local time on the Thursday before the letting to ensure all addenda have been accounted for before preparing the bid. When bidding using methods 1 and 2 above, check the Bid Express™ on-line bidding exchange at http://www.bidx.com/ after 5:00 P.M. local time on the Thursday before the letting to ensure that the latest schedule of items Expedite file (*.ebs or *.00x) is used to submit the final bid.

(4) Interested parties can subscribe to the Bid Express™ on-line bidding exchange by following the instructions provided at the www.bidx.com web site or by contacting:

Info Tech Inc.
5700 SW 34th Street, Suite 1235
Gainesville, FL 32608-5371
email: mailto:customer.support@bidx.com

**(5)** The department will address equipment and process failures, if the bidder can demonstrate that those failures were beyond their control.

**(6)** Contractors are responsible for checking on the issuance of addenda and for obtaining the addenda. Notice of issuance of addenda is posted on the department's web site at:
http://wisconsindot.gov/Pages/doing-bus/contractors/hcci/bid-let.aspx

or by calling the department at (608) 266-1631. Addenda can ONLY be obtained from the departments web site listed above or by picking up the addenda at the Bureau of Highway Construction, Room 601, 4802 Sheboygan Avenue, Madison, WI, during regular business hours.

**(7)** Addenda posted after 5:00 PM on the Thursday before the letting will be emailed to the eligible bidders for that proposal. All eligible bidders shall acknowledge receipt of the addenda whether they are bidding on the proposal or not. Not acknowledging receipt may jeopardize the awarding of the project.

## B Submitting Electronic Bids

### B.1 On the Internet

(1) Do the following before submitting the bid:

1. Have a properly executed annual bid bond on file with the department.
2. Have a digital ID on file with and enabled by Info Tech Inc. Using this digital ID will constitute the bidder's signature for proper execution of the bidding proposal.

(2) In lieu of preparing, delivering, and submitting the proposal as specified in 102.6 and 102.9 of the standard specifications, submit the proposal on the internet as follows:

1. Download the latest schedule of items reflecting all addenda from the Bid Express web site.
2. Use Expedite™ software to enter a unit price for every item in the schedule of items.
3. Submit the bid according to the requirements of Expedite™ software and the Bid Express™ web site. Do not submit a bid on a printout with accompanying diskette or CD ROM or a paper bid. If the bidder does submit a bid on a printout with accompanying diskette or a paper bid in addition to the internet submittal, the department will disregard the internet bid.
4. Submit the bid before the hour and date the Notice to Contractors designates.
5. Do not sign, notarize, and return the bidding proposal described in 102.2 of the standard specifications.

(3) The department will not consider the bid accepted until the hour and date the Notice to Contractors designates.

### B.2 On a Printout with Accompanying Diskette or CD ROM

(1) Download the latest schedule of items from the Wisconsin pages of the Bid Express™ web site reflecting the latest addenda posted on the department's web site at:

http://wisconsindot.gov/Pages/doing-bus/contractors/hcci/bid-let.aspx

Use Expedite ™ software to prepare and print the schedule of items. Provide a valid amount for all price fields. Follow instructions and review the help screens provided on the Bid Express™ web site to assure that the schedule of items is prepared properly.

(2) Staple an 8 1/2 by 11 inch printout of the Expedite™ generated schedule of items to the other proposal documents submitted to the department as a part of the bidder's sealed bid. As a separate submittal not in the sealed bid envelop but due at the same time and place as the sealed bid, also provide the Expedite™ generated schedule of items on a 3 1/2 inch computer diskette or CD ROM. Label each diskette or CD ROM with the bidder's name, the 4 character department-assigned bidder identification code from the top of the bidding proposal, and a list of the proposal numbers included on that diskette or CD ROM as indicated in the following example:

**Bidder**

**Name**

**BN00**

**Proposals: 1, 12, 14, & 22**

(3) If bidding on more than one proposal in the letting, the bidder may include all proposals for that letting on one diskette or CD ROM. Include only submitted proposals with no incomplete or other files on the diskette or CD ROM.

(4) The bidder-submitted printout of the Expedite™ generated schedule of items is the governing contract document and must conform to the requirements of section 102 of the standard specifications. If a printout needs to be altered, cross out the printed information with ink or typewriter and enter the new information and initial it in ink. If there is a discrepancy between the printout and the diskette or CD ROM, the department will analyze the bid using the printout information.

(5) In addition to the reasons specified in section 102 of the standard specifications, proposals are irregular and the department may reject them for one or more of the following:

1. The check code printed on the bottom of the printout of the Expedite™ generated schedule of items is not the same on each page.
2. The check code printed on the printout of the Expedite™ generated schedule of items is not the same as the check code for that proposal provided on the diskette or CD ROM.
3. The diskette or CD ROM is not submitted at the time and place the department designates.

**C Waiver of Electronic Submittal**

(1) The bidder may request a waiver of the electronic submittal requirements. Submit a written request for a waiver in lieu of bids submitted on the internet or on a printout with accompanying diskette or CD ROM. Use the waiver that was included with the paper bid document sent to the bidder or type up a waiver on the bidder's letterhead. The department will waive the electronic submittal requirements for a bidding entity (individual, partnership, joint venture, corporation, or limited liability company) for up to 4 individual proposals in a calendar year. The department may allow additional waivers for equipment malfunctions.

(2) Submit a schedule of items on paper conforming to section 102 of the standard specifications. The department charges the bidder a $75 administrative fee per proposal, payable at the time and place the department designates for receiving bids, to cover the costs of data entry. The department will accept a check or money order payable to: "Wisconsin, Dept. of Transportation."

(3) In addition to the reasons specified in section 102 of the standard specifications, proposals are irregular and the department may reject them for one or more of the following:

1. The bidder fails to provide the written request for waiver of the electronic submittal requirements.
2. The bidder fails to pay the $75 administrative fee before the time the department designates for the opening of bids unless the bidder requests on the waiver that they be billed for the $75.
3. The bidder exceeds 4 waivers of electronic submittal requirements within a calendar year.

(4) In addition to the reasons specified in section 102 of the standard specifications, the department may refuse to issue bidding proposals for future contracts to a bidding entity that owes the department administrative fees for a waiver of electronic submittal requirements.

# PROPOSAL BID BOND

Wisconsin Department of Transportation

DT1303 1/2006

| Proposal Number | Project Number | Letting Date |
|---|---|---|
| Name of Principal | | |
| Name of Surety | State in Which Surety is Organized | |

We, the above-named Principal and the above-named Surety, are held and firmly bound unto the State of Wisconsin in the sum equal to the Proposal Guaranty for the total bid submitted for the payment to be made; we jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns. The condition of this obligation is that the Principal has submitted a bid proposal to the State of Wisconsin acting through the Department of Transportation for the improvement designated by the Proposal Number and Letting Date indicated above.

If the Principal is awarded the contract and, within the time and manner required by law after the prescribed forms are presented for signature, enters into a written contract in accordance with the bid, and files the bond with the Department of Transportation to guarantee faithful performance and payment for labor and materials, as required by law, or if the Department of Transportation shall reject all bids for the work described, then this obligation shall be null and void; otherwise, it shall be and remain in full force and effect. In the event of failure of the Principal to enter into the contract or give the specified bond, the Principal shall pay to the Department of Transportation **within 10 business days of demand** a total equal to the Proposal Guaranty as liquidated damages; the liability of the Surety continues for the full amount of the obligation as stated until the obligation is paid in full.

The Surety, for value received, agrees that the obligations of it and its bond shall not be impaired or affected by any extension of time within which the Department of Transportation may accept the bid; and the Surety does waive notice of any such extension.

IN WITNESS, the Principal and Surety have agreed and have signed by their proper officers and have caused their corporate seals to be affixed this date: **(DATE MUST BE ENTERED)**

**PRINCIPAL**

(Company Name) **(Affix Corporate Seal)**

(Signature and Title)

(Company Name)

(Signature and Title)

(Company Name)

(Signature and Title)

(Company Name)

(Signature and Title)

(Name of Surety) **(Affix Seal)**

(Signature of Attorney-in-Fact)

**NOTARY FOR PRINCIPAL**

(Date)

State of Wisconsin )
) ss.
_____ County )

On the above date, this instrument was acknowledged before me by the named person(s).

(Signature, Notary Public, State of Wisconsin)

(Print or Type Name, Notary Public, State of Wisconsin)

(Date Commission Expires)

**Notary Seal**

**NOTARY FOR SURETY**

(Date)

State of Wisconsin )
) ss.
_____ County )

On the above date, this instrument was acknowledged before me by the named person(s).

(Signature, Notary Public, State of Wisconsin)

(Print or Type Name, Notary Public, State of Wisconsin)

(Date Commission Expires)

**Notary Seal**

**IMPORTANT: A certified copy of Power of Attorney of the signatory agent must be attached to the bid bond.**

# CERTIFICATE OF ANNUAL BID BOND

Wisconsin Department of Transportation

DT1305 8/2003

| |
|---|
| Time Period Valid (From/To) |
| Name of Surety |
| Name of Contractor |
| Certificate Holder<br>Wisconsin Department of Transportation |

This is to certify that an annual bid bond issued by the above-named Surety is currently on file with the Wisconsin Department of Transportation.

This certificate is issued as a matter of information and conveys no rights upon the certificate holder and does not amend, extend or alter the coverage of the annual bid bond.

**Cancellation**: Should the above policy be cancelled before the expiration date, the issuing surety will give thirty (30) days written notice to the certificate holder indicated above.

(Signature of Authorized Contractor Representative) (Date)

**March 2010**

## LIST OF SUBCONTRACTORS

Section 66.0901(7), Wisconsin Statutes, provides that as a part of the proposal, the bidder also shall submit a list of the subcontractors the bidder proposes to contract with and the class of work to be performed by each. In order to qualify for inclusion in the bidder's list a subcontractor shall first submit a bid in writing, to the general contractor at least 48 hours prior to the time of the bid closing. The list may not be added to or altered without the written consent of the municipality. A proposal of a bidder is not invalid if any subcontractor and the class of work to be performed by the subcontractor has been omitted from a proposal; the omission shall be considered inadvertent or the bidder will perform the work personally.

No subcontract, whether listed herein or later proposed, may be entered into without the written consent of the Engineer as provided in Subsection 108.1 of the Standard Specifications.

| Name of Subcontractor | Class of Work | Estimated Value |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

**DECEMBER 2000**

## CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS - PRIMARY COVERED TRANSACTIONS

Instructions for Certification

1. By signing and submitting this proposal, the prospective contractor is providing the certification set out below.

2. The inability of a person to provide the certification required below will not necessarily result in denial of participation in this covered transaction. The prospective contractor shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective contractor to furnish a certification or an explanation shall disqualify such person from participation in this transaction.

3. The certification in this clause is a material representation of fact upon which reliance was placed when the department determined to enter into this transaction. If it is later determined that the contractor knowingly rendered an erroneous certification in addition to other remedies available to the Federal Government the department may terminate this transaction for cause or default.

4. The prospective contractor shall provide immediate written notice to the department to whom this proposal is submitted if at any time the prospective contractor learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

5. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. You may contact the department to which this proposal is being submitted for assistance in obtaining a copy of those regulations.

6. The prospective contractor agrees by submitting this proposal that, should this contract be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department entering into this transaction.

7. The prospective contractor further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," which is included as an addendum to PR-1273 - "Required Contract Provisions Federal Aid Construction Contracts," without

modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

8. The contractor may rely upon a certification of a prospective subcontractor/materials supplier that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A contractor may decide the method and frequency by which it determines the eligibility of its principals. Each contractor may, but is not required to, check the Disapproval List (telephone # 608/266/1631).

9. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

10. Except for transactions authorized under paragraph 6 of these instructions, if a contractor in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department may terminate this transaction for cause or default.

Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions

(1) The prospective contractor certifies to the best of its knowledge and belief, that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offense enumerated in paragraph (1)(b) of this certification; and

(d) Have not within a three-year period preceding this proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

(2) Where the prospective contractor is unable to certify to any of the statements in this certification, such prospective contractor shall attach an explanation to this proposal.

## Special Provisions

## Table of Contents


| Article | Description | Page # |
|---|---|---|
| 1. | General. | 15 |
| 2. | Scope of Work. | 15 |
| 3. | Mandatory Pre-Bid Meeting. | 17 |
| 4. | Prosecution and Progress. | 18 |
| 5. | Lane Rental Assessment. | 44 |
| 6. | Traffic. | 48 |
| 7. | Holiday and Special Event Work Restrictions. | 52 |
| 8. | Utilities. | 55 |
| 9. | Other Contracts. | 95 |
| 10. | Railroad Insurance and Coordination – Canadian Pacific Railway. | 96 |
| 11. | Railroad Insurance and Coordination – Union Pacific Railroad. | 97 |
| 12. | Union Pacific Railroad Company Requirements. | 101 |
| 13. | Hauling Restrictions. | 103 |
| 14. | Information to Bidders, U.S. Army Corps of Engineers Section 404 Permit. | 104 |
| 15. | Environmental Protection, Aquatic Exotic Species Control. | 104 |
| 16. | Environmental Protection – Waste. | 105 |
| 17. | Erosion Control. | 107 |
| 18. | Erosion Control Structures. | 108 |
| 19. | Notice to Contractor, Notification of Demolition and/or Renovation No Asbestos Found. | 108 |
| 20. | Public Convenience and Safety. | 111 |
| 21. | Notice to Contractor - Department Provided Advanced Bill of Materials Drawings. | 112 |
| 22. | Notice to Contractor – Traffic Signal Equipment Lead Time. | 113 |
| 23. | Notice to Contractor – Hank Aaron State Trail. | 113 |
| 24. | Notice to Contractor - Construction Staging Areas. | 113 |
| 25. | Notice to Contractor – Southwest Core Pond Temporary Drainage. | 114 |
| 26. | Notice to Contractor - Milwaukee County Transit System. | 115 |
| 27. | Notice to Contractor – Milwaukee County Zoo. | 115 |
| 28. | Notice to Contractor – Contamination Beyond Construction Limits. | 116 |
| 29. | Notice to Contractor – Waste. | 116 |
| 30. | Notice to Contractor – Disposal of Treated Railroad Ties. | 116 |
| 31. | Notice to Contractor – Airport Operating Restrictions. | 116 |
| 32. | Notice to Contractor – Preserving Trees, Shrubs, and Planting Areas in the City of Milwaukee. | 117 |
| 33. | Notice to Contractor - Road Weather Information System (RWIS) Coordination. | 119 |
| 34. | Public Involvement Meetings. | 119 |
| 35. | Traffic Meetings and Traffic Control Scheduling. | 119 |
| 36. | Material and Equipment Staging. | 120 |
| 37. | 3D Model Data. | 120 |

38. Available Documents. 124
39. Geotechnical Investigation Information. 124
40. Contract Award and Execution. 127
41. Contractor Notification. 137
42. Municipality Acceptance of Sanitary Sewer and Water Main Construction. 137
43. Contractor Document Submittals. 138
44. Claims Process for Unresolved Changes. 138
45. Information to Bidders, Use of Recovered Material. 146
46. Dust Control Implementation Plan. 146
47. ATR Control of Materials – ATR 40-0001 149
48. Project Site Air Quality. 149
49. Maintaining Drainage. 150
50. Notice to Contractor – OCIP Exclusions. 151
51. Owner Controlled Insurance Program. 151
52. Subletting the Contract. 163
53. Incentive/Disincentive for Interim Completion of Work Ramp NE, Item 108.3100.S.0003. 163
54. Pay Plan Quantity. 165
55. Force Account. 165
56. Clearing and Grubbing, Emerald Ash Borer. 165
57. Abatement of Asbestos Containing Material Structure B-40-101, Item 203.0210.S.0001; Structure B-40-0112, Item 203.0210.S.0002; Structure B-40-0126, Item 203.0210.S.0003; Structure B-40-0127, Item 203.0210.S.0004; Structure B-40-0143, Item 203.0210.S.0005; Structure B-40-0144, Item 203.0210.S.0006; Structure B-40-0094, Item 203.0210.S.0007; Structure B-40-0096, Item 203.0210.S.0008; Structure B-40-0097, Item 203.0210.S.0009. 169
58. Debris Containment B-40-0126, Item 203.0225.S.0001; B-40-0127, Item 203.0225.S.0002. 174
59. Removing Old Structure Over Waterway With Minimal Debris Station 100EW+77, Item 203.0600.S.0001; Station 100EW+80, Item 203.0600.S.0002. 176
60. Removing Old Culverts and Bridges. 177
61. Pavement Breaking Equipment. 179
62. Removing Concrete Barrier. 179
63. Removing or Abandoning Miscellaneous Structures. 179
64. Removing Concrete Surface Partial Depth, Item 204.0109.S. 180
65. Abandoning Sewer, Item 204.0291.S. 181
66. Removing Apron Endwall, Item 204.9060.S.0002. 182
67. Removing Noise Barrier, Item 204.9090.S.0001. 182
68. Removing Drain Slotted Vane, Item 204.9090.S.0005. 183
69. Roadway Excavation. 183
70. QMP Subgrade. 184
71. Backfill Controlled Low Strength, Item 209.0200.S. 195
72. Select Crushed Material. 197
73. QMP Base Aggregate. 197
74. Concrete Pavement Approach Slab. 205
75. Concrete Maturity Testing. 205

76. QMP Ride; Incentive IRI Ride, Item 440.4410.S. ..... 206
77. QMP Bridge Ride; Incentive IRI Ride Bridge, Item 440.5020. ..... 213
78. QMP HMA Pavement Nuclear Density. ..... 219
79. Asphaltic Surface Temporary. ..... 226
80. Backfill Slurry. ..... 226
81. Concrete Masonry Structures. ..... 227
82. Contact Grouting. ..... 229
83. QMP Drilled Shafts. ..... 235
84. Concrete Curing Materials. ..... 243
85. Hydrophilic Waterstop. ..... 243
86. Bar Steel Reinforcement HS Stainless Structures, Item 505.0800.S. ..... 244
87. Steel Bridge Construction Plan. ..... 246
88. Railing Pipe B-40-585, Item 513.2000.0001; R-40-467, Item 513.2000.0002; R-40-469, Item 513.2000.0003; R-40-498, Item 513.2000.0004; R-40-507, Item 513.2000.0005; R-40-509, Item 513.2000.0006; R-40-511, Item 513.2000.0007; R-40-516, Item 513.2000.0008; R-40-518, Item 513.2000.0009; R-40-522, Item 513.2000.0010; R-40-524, Item 513.2000.0011; R-40-525, Item 513.2000.0012; R-40-540, Item 513.2000.0013; R-40-545, Item 513.2000.0014; R-40-5557, Item 513.2000.0015; R-40-558, Item 513.2000.0016; R-40-559, Item 513.2000.0017; R-40-797, Item 513.2000.0018; R-40-655, Item 513.2000.0019. ..... 252
89. Painting Epoxy System B-40-787, Item 517.0060.0001; B-40-861, Item 517.0060.0002; R-40-468, Item 517.0060.0003; R-40-516, Item 517.0060.0004; R-40-631, Item 517.0060.0005; R-40-655, Item 517.0060.0006. ..... 253
90. Painting Polysiloxane System B-40-786, Item 517.0650.S.0001; B-40-853, Item 517.0650.S.0002; B-40-854, Item 517.0650.S.0003; B-40-856, Item 517.0650.S.0004. ..... 254
91. Concrete Staining B-40-786, Item 517.1010.S.0001; B-40-787, Item 517.1010.S.0002; B-40-788, Item 517.1010.S.0003; B-40-790, Item 517.1010.S.0004; B-40-795, Item 517.1010.S.0005; B-40-796, Item 517.1010.S.0006; B-40-797, Item 517.1010.S.0007; B-40-850, Item 517.1010.S.0008; B-40-851, Item 517.1010.S.0009; B-40-853, Item 517.1010.S.0010; B-40-854, Item 517.1010.S.0011; B-40-856, Item 517.1010.S.0012; B-40-858, Item 517.1010.S.0013; B-40-859, Item 517.1010.S.0014; B-40-860, Item 517.1010.S.0015; B-40-861, Item 517.1010.S.0016; B-40-867, Item 517.1010.S.0017; B-40-869, Item 517.1010.S.0018; B-40-870, Item 517.1010.S.0019; B-40-882, Item 517.1010.S.0021; B-40-883, Item 517.1010.S.0022; R-40-467, Item 517.1010.S.0023; R-40-468, Item 517.1010.S.0024; R-40-469, Item 517.1010.S.0025; R-40-470, Item 517.1010.S.0026; R-40-497, Item 517.1010.S.0027; R-40-498, Item 517.1010.S.0028; R-40-505, Item 517.1010.S.0029; R-40-507, Item 517.1010.S.0030; R-40-509, Item 517.1010.S.0031; R-40-511, Item 517.1010.S.0033; R-40-516, Item 517.1010.S.0034; R-40-518, Item 517.1010.S.0035; R-40-520, Item 517.1010.S.0036; R-40-522, Item 517.1010.S.0037; R-40-524, Item 517.1010.S.0038; R-40-525, Item 517.1010.S.0039; R-40-527, Item 517.1010.S.0040; R-40-529, Item 517.1010.S.0041; R-40-532, Item

517.1010.S.0042; R-40-534, Item 517.1010.S.0043; R-40-535, Item 517.1010.S.0044; R-40-540, Item 517.1010.S.0045; R-40-545, Item 517.1010.S.0046; R-40-547, Item 517.1010.S.0047; R-40-557, Item 517.1010.S.0048; R-40-558, Item 517.1010.S.0049; R-40-559, Item 517.1010.S.0050; S-40-11, Item 517.1010.S.0051; S-40-13, Item 517.1010.S.0052; S-40-15, Item 517.1010.S.0053; S-40-26, Item 517.1010.S.0054; S-40-29, Item 517.1010.S.0055; S-40-30, Item 517.1010.S.0056; S-40-31, Item 517.1010.S.0057; S-40-35, Item 517.1010.S.0058; S-40-40, Item 517.1010.S.0060; S-40-42, Item 517.1010.S.0062; S-40-46, Item 517.1010.S.0063; S-40-52, Item 517.1010.S.0064; S-40-74, Item 517.1010.S.0065; S-40-82, Item 517.1010.S.0067; S-40-102, Item 517.1010.S.0069; S-40-111, Item 517.1010.S.0072; S-40-114, Item 517.1010.S.0074; S-40-115, Item 517.1010.S.0075; S-40-3, Item 517.1010.S.0076; S-40-8, Item 517.1010.S.0077; S-40-10, Item 517.1010.S.0078; S-40-19, Item 517.1010.S.0079; S-40-20, Item 517.1010.S.0080; S-40-23, Item 517.1010.S.0081; S-40-33, Item 517.1010.S.0082; S-40-34, Item 517.1010.S.0083; S-40-45, Item 517.1010.S.0084; S-40-53, Item 517.1010.S.0085; S-40-55, Item 517.1010.S.0086; S-40-80, Item 517.1010.S.0087; S-40-81, Item 517.1010.S.0088; S-40-84, Item 517.1010.S.0089; S-40-86, Item 517.1010.S.0090; S-40-91, Item 517.1010.S.0091; S-40-93, Item 517.1010.S.0092; S-40-97, Item 517.1010.S.0094; S-40-98, Item 517.1010.S.0095; S-40-103, Item 517.1010.S.0096; S-40-105, Item 517.1010.S.0097; S-40-112, Item 517.1010.S.0098; S-40-138, Item 517.1010.S.0099; B-40-871, Item 517.1010.S.0103; B-40-872, Item 517.1010.S.0104; B-40-873, Item 517.1010.S.0105; B-40-874, Item 517.1010.S.0106; R-40-495, Item 517.1010.S.0107; R-40-631, Item 517.1010.S.0109; R-40-655, Item 517.1010.S.0110; S-40-782, Item 517.1010.S.0111; S-40-787, Item 517.1010.S.0112; S-67-47, Item 517.1010.S.0113. ..... 256

92. Concrete Staining Multi-Color B-40-870, Item 517.1015.S.0001; R-40-525, Item 517.1015.S.0002; R-40-529, Item 517.1015.S.0003; R-40-532, Item 517.1015.S.0004; R-40-534, Item 517.1015.S.0005; R-40-540, Item 517.1015.S.0006; Minor Retaining Wall R-2, Item 517.1015.S.0007; R-40-524, Item 517.1015.S.0008. ..... 262

93. Architectural Surface Treatment R-40-467, Item 517.1050.S.0001; R-40-468, Item 517.1050.S.0002; R-40-469, Item 517.1050.S.0003; R-40-470, Item 517.1050.S.0004; R-40-497, Item 517.1050.S.0005; R-40-498, Item 517.1050.S.0006; R-40-505, Item 517.1050.S.0007; R-40-507, Item 517.1050.S.0008; R-40-509, Item 517.1050.S.0009; R-40-511, Item 517.1050.S.0011; R-40-516, Item 517.1050.S.0012; R-40-518, Item 517.1050.S.0013; R-40-520, Item 517.1050.S.0014; R-40-522, Item 517.1050.S.0015; R-40-524, Item 517.1050.S.0016; R-40-525, Item 517.1050.S.0017; R-40-527, Item 517.1050.S.0018; R-40-529, Item 517.1050.S.0019; R-40-532, Item 517.1050.S.0020; R-40-534, Item 517.1050.S.0021; R-40-535, Item 517.1050.S.0022; R-40-540, Item

517.1050.S.0023; R-40-545, Item 517.1050.S.0024; R-40-547, Item 517.1050.S.0025; R-40-558, Item 517.1050.S.0026; R-40-559, Item 517.1050.S.0027; B-40-850, Item 517.1050.S.0028; B-40-858, Item 517.1050.S.0029; B-40-870, Item 517.1050.S.0030; R-40-495, Item 517.1050.S.0031; R-40-631, Item 517.1050.S.0032; R-40-655, Item 517.1050.S.0033; R-40-557, Item 517.1050.S.0034; Minor Retaining Wall R-2, Item 517.1050.S.0035. ..... 264
94. Noise Barriers Double-Sided Sound Absorptive N-40-61, Item 531.0300.S.0001; N-40-62, Item 531.0300.S.0002; N-40-63, Item 531.0300.S.0003; N-40-64, Item 531.0300.S.0004; N-40-66, Item 531.0300.S.0006; N-40-67, Item 531.0300.S.0007; N-40-76, Item 531.0300.S.0008; N-40-77, Item 531.0300.S.0009; N-40-78, Item 531.0300.S.0010; N-40-79, Item 531.0300.S.0011. ..... 266
95. Driven Piles Using Pile Dynamic Analyzer. ..... 280
96. Concrete Barrier. ..... 280
97. Storm Sewer. ..... 281
98. Catch Basins, Manholes, and Inlets. ..... 282
99. Cover Plates Temporary, Item 611.8120.S. ..... 284
100. Pipe Grates, Item 611.9800.S. ..... 284
101. Fence Safety, Item 616.0700.S. ..... 285
102. Soil Stabilizer Type B. ..... 286
103. Seeding. ..... 286
104. Furnishing and Planting Plant Materials. ..... 288
105. Landscape Planting Surveillance and Care Cycles. ..... 288
106. Sign Supports Concrete Masonry. ..... 289
107. Signs Type I and II. ..... 290
108. Field Facilities. ..... 291
109. Traffic Control. ..... 291
110. Flexible Tubular Markers. ..... 292
111. Nighttime Work Lighting-Stationary. ..... 292
112. Truck or Trailer-Mounted Attenuator, Item 643.1055.S. ..... 294
113. Traffic Control Detour Signs Not in Use. ..... 295
114. Pavement Marking Grooved Wet Reflective Contrast Tape 4-Inch, Item 646.0841.S; 8-Inch, Item 646.0843.S. ..... 295
115. Pavement Marking Grooved Wet Reflective Tape 8-Inch, Item 646.0883.S. ..... 298
116. Pavement Marking Grooved Wet Reflective Epoxy 4-Inch, Item 646.2304.S. ..... 300
117. Late Season Marking Requirements. ..... 303
118. Roadway Lighting Systems. ..... 303
119. Install Conduit Into Existing Item, Item 652.0700.S. ..... 305
120. Electrical Conduit. ..... 305
121. Traffic Signals, General. ..... 306
122. Anchor Assemblies Light Poles on Structures, Item 657.6005.S. ..... 306
123. Luminaires Utility LED B, Item 659.1120; Luminaires Utility LED D, Item 659.1130 ..... 307

124. Ramp Closure Gates Hardwired 28-FT, Item 662.1028.S; Ramp Closure Gates Hardwired 32-FT, Item 662.1032.S; Ramp Closure Gates Hardwired 37-FT, Item 662.1037.S; Ramp Closure Gates Hardwired 40-FT, Item 662.1040.S. ..... 307
125. Intelligent Transportation Systems (ITS) – Control of Materials. ..... 312
126. Intelligent Transportation Systems – General Requirements. ..... 313
127. Install ITS Field Cabinet, Item 673.0200.S. ..... 318
128. Install Pole Mounted Cabinet, Item 673.0225.S. ..... 319
129. Install Ethernet Switch, Item 675.0400.S. ..... 320
130. Removing Advance Flasher Assemblies Type 1, Item 676.9001.S. ..... 320
131. Cameras ..... 321
132. Removing 50-Foot Camera Pole, Item 677.9051.S. ..... 322
133. Removing CCTV Camera, Item 677.9200.S. ..... 323
134. Permanent Steel Bridge Deck Forms. ..... 324
135. QMP Concrete Pavement Special Requirements. ..... 326
136. Rootstock Protection, Item SPV.0005.0001. ..... 330
137. EBS Excavation, Item SPV.0035.0100 ..... 331
138. EBS Backfill, Item SPV.0035.0101 ..... 333
139. Excavation, Hauling, and Reuse of Solid Waste Soil, Item SPV.0035.0700. ..... 334
140. HPC Masonry Structures, Item SPV.0035.4000. ..... 338
141. Concrete Masonry Soldier Pile Footings, Item SPV.0035.4010. ..... 346
142. Lightweight Foamed Concrete Fill Grade 1, Item SPV.0035.4020; Grade 2, Item SPV.0035.4030. ..... 347
143. Detention Basin Clay Lining, Item SPV.0035.8001. ..... 353
144. Temporary Crosswalk/Sidewalk, Item SPV.0045.0100. ..... 358
145. Portable Speed Trailer, Item SPV.0045.0401. ..... 359
146. Dynamic Late Merge System, Item SPV.0045.2000. ..... 360
147. Work Zone Construction Traffic Merge Warning System, Item SPV.0045.2001 ..... 364
148. Dispute Review Board, Item SPV.0055.0401. ..... 366
149. Railroad Flagging Reimbursement, Item SPV.0055.0900 ..... 368
150. Exposing Existing Infrastructure Paved Area, Item SPV.0060.0003. ..... 369
151. Exposing Existing Infrastructure Unpaved Area, Item SPV.0060.0004. ..... 371
152. Baseline CPM Progress Schedule, Item SPV.0060.0005; Monthly CPM Progress Schedule Updates, Item SPV.0060.0006. ..... 373
153. Removing High Mast Lighting Tower Concrete Base, Item SPV.0060.0010. ..... 384
154. Removing High Mast Lighting Tower, Item SPV.0060.0011. ..... 385
155. Shallow Marsh Rootstock, Item SPV.0060.0013. ..... 386
156. Removing Utility Vault, Item SPV.0060.0015. ..... 387
157. Removing Old Sign Structure S-40-100, Item SPV.0060.0016; S-40-133, Item SPV.0060.0017; S-40-156, Item SPV.0060.0018; S-40-128, Item SPV.0060.0019; S-40-213, Item SPV.0060.0020; S-40-214, Item SPV.0060.0021; S-40-309, Item SPV.0060.0023; S-40-35, Item SPV.0060.0024; S-40-78, Item SPV.0060.0026; S-40-99, Item SPV.0060.0027; S-40-995, Item SPV.0060.0028; S-40-996, Item SPV.0060.0029. ..... 388
158. Temporary Bus Stop Pad, Item SPV.0060.0101 ..... 389
159. Concrete Barrier Type S56A Special Light Pole Base, Item SPV.0060.0126. ..... 390

160. Concrete Barrier Transition Type G1, Item SPV.0060.0127; Type G2, Item SPV.0060.0128; Type G3, Item SPV.0060.0129; Type G4, Item SPV.0060.0130; Type G5, Item SPV.0060.0131; Type G6, Item SPV.0060.0132; Type G7, Item SPV.0060.0133; Type G8, Item SPV.0060.0134; Type G9, Item SPV.0060.0135; Type G10, Item SPV.0060.0136; Type G11, Item SPV.0060.0137; Type G12, Item SPV.0060.0138; Type G13, Item SPV.0060.0139; Type G14, Item SPV.0060.0140; Type G15, Item SPV.0060.0141; Type G16, Item SPV.0060.0142; Type G17, Item SPV.0060.0143; Type G18, Item SPV.0060.0144; Type G19, Item SPV.0060.0145; Type M1, Item SPV.0060.0150; Type M2, Item SPV.0060.0151; Type M3, Item SPV.0060.0152; Type M4, Item SPV.0060.0153; Type M5, Item SPV.0060.0154; Type M6, Item SPV.0060.0155. ..... 392
161. Concrete Barrier Type S32 End Anchor, Item SPV.0060.0160; S42 End Anchor, Item 0060.0162; S56 End Anchor, Item SPV.0060.0164; S56 Special End Anchor, Item SPV.0060.0166; S56A Special End Anchor, Item SPV.0060.0168..... 394
162. Section Corner Monuments Special, Item SPV.0060.0190. ..... 394
163. Pavement Marking Contrast Grooved Preformed Thermoplastic Arrows Type 2, Item SPV.0060.0302; Arrows Type 3, Item SPV.0060.0304; Arrows Type 4, Item SPV.0060.0306; Arrows Type 5, Item SPV.0060.0308; Words, Item SPV.0060.0310. ..... 396
164. Truck Cleanout of Pavement Marking Orange Epoxy, Item SPV.0060.0322..... 398
165. Traffic Control Close-Open Freeway Entrance Ramp, Item SPV.0060.0400. ..... 399
166. Traffic Control Close-Open Freeway to Freeway System Ramp, Item SPV.0060.0401. ..... 399
167. Traffic Control Interim Freeway Lane Closure, Item SPV.0060.0402..... 400
168. Traffic Control Local Road Lane Closures, Item SPV.0060.0403. ..... 401
169. Temporary Sign Portable Support, Item SPV.0060.0405..... 401
170. Mobilizations Emergency Pavement Repair, Item SPV.0060.0406. ..... 402
171. Traffic Control Full Freeway Closure, Item SPV.0060.0408. ..... 403
172. Maintaining Signs Fixed Message, Item SPV.0060.0410. ..... 403
173. Maintaining Traffic Control Covering Signs Type I, Item SPV.0060.0412..... 404
174. Permanent Barricades Type III, Item SPV.0060.0414. ..... 405
175. Sign Support Special Mounting, SPV.0060.0416..... 405
176. Dynamic Speed Display Sign, Item SPV.0060.0420..... 406
177. Moving Dynamic Speed Display Sign, Item SPV.0060.0422. ..... 407
178. Gates Decorative HAST Ground Mounted 12-Foot, Item SPV.0060.0606; 30-Foot, Item SPV.0060.0608..... 408
179. Lamp Disposal High Intensity Discharge, Item SPV.0060.1010. ..... 411
180. Relocating Light Poles Arms and Luminaires, Item SPV.0060.1019. ..... 412
181. Removing Aluminum Light Poles and Arms - Wauwatosa, Item SPV.0060.1031. ..... 413
182. Removing Concrete Light Poles and Arms - Wauwatosa, Item SPV.0060.1032. ..... 414
183. Removing Aluminum Light Poles, Arms and Luminaires, Item SPV.0060.1033..... 414
184. Wood Pole Lighting 60-Foot, Item SPV.0060.1035..... 415
185. Poles Wood 60-Foot, Item SPV.0060.1036..... 416
186. Poles Wood 35-Foot, Item SPV.0060.1037..... 417
187. Removing Poles Wood 60-Foot and Floodlights, Item SPV.0060.1040. ..... 417

188. Removing Poles Wood 60-Foot, Item SPV.0060.1041. ..... 418
189. Removing Poles Wood 35-Foot, Item SPV.0060.1042. ..... 419
190. Removing Poles Wood 35-Foot and Floodlights, Item SPV.0060.1043. ..... 419
191. Tunnel Luminaire, Item SPV.0060.1050. ..... 420
192. Lighting Control Cabinet Tunnel Lighting, Item SPV.0060.1051. ..... 424
193. Brackets Tunnel Lighting, Item SPV.0060.1052. ..... 428
194. Junction Boxes Steel 18x12x6-Inch Coated, Item SPV.0060.1056. ..... 429
195. Luminaire Utility LED E, Item SPV.0060.1065. ..... 430
196. Salvaging Luminaire LED - DOT, Item SPV.0060.1066. ..... 432
197. Luminaires Floodlight 1000W HPS, Item SPV.0060.1070. ..... 432
198. Luminaires Floodlight 400W HPS, Item SPV.0060.1071. ..... 433
199. Luminaire (UDL) Wallpack LED, Item SPV.0060.1078. ..... 434
200. Luminaire (UDL) Wallpack LED-West Allis, Item SPV.0060.1079. ..... 436
201. Salvage Lighting Control Cabinets, Item SPV.0060.1090. ..... 437
202. Lighting Control Cabinet 480/277 VAC, Item SPV.0060.1100. ..... 437
203. Lighting Control Cabinet with FTMS Power 480/277 VAC, Item SPV.0060.1102. ..... 441
204. Poles Mount for Probeam Luminaire, Item SPV.0060.1125. ..... 442
205. Concrete Bases Type 10P, Item SPV.0060.1126. ..... 443
206. Probeam Luminaire, Item SPV.0060.1127. ..... 444
207. Poles 13-Foot for Probeam Luminaire, Item SPV.0060.1128. ..... 446
208. Poles Aluminum Type F, Item SPV.0060.1130. ..... 447
209. Concrete Bases Type B, Item SPV.0060.1131. ..... 448
210. Removing Electrical Service Meter Breaker Pedestal Lighting, Item SPV.0060.1153. ..... 449
211. Ground Rod, Item SPV.0060.2001. ..... 449
212. Removing Ramp Control Signal Assembly Sidemount, Item SPV.0060.2002. ..... 450
213. Removing Controller Cabinet, Item SPV.0060.2003. ..... 451
214. Removing Controller Cabinet Base, Item SPV.0060.2004. ..... 452
215. Removing Controller Ramp Meter Processor Assembly, Item SPV.0060.2005. ..... 452
216. Removing Electrical Service Meter Breaker Pedestal, Item SPV.0060.2006. ..... 453
217. Removing Communications Vault, Item SPV.0060.2007. ..... 454
218. Install 80-Ft Camera Pole, Item SPV.0060.2008. ..... 455
219. Removing Microwave Detector Assembly, Item SPV.0060.2009. ..... 455
220. Install Portable Video Surveillance System, Item SPV.0060.2010. ..... 456
221. Relocating Portable Video Surveillance System, Item SPV.0060.2011. ..... 457
222. Install Temporary Vehicle Detector Assembly, Item SPV.0060.2012. ..... 458
223. Refocusing Vehicle Detector Assembly, Item SPV.0060.2013. ..... 459
224. Removing Temporary Vehicle Detector Assembly, Item SPV.0060.2014. ..... 460
225. Relocating Temporary Vehicle Detector Assembly, Item SPV.0060.2015. ..... 461
226. Removing Electronic Blank Out Sign Assembly, Item SPV.0060.2016. ..... 463
227. Install Antenna, Item SPV.0060.2017. ..... 463
228. Install Wireless Modem, Item SPV.0060.2018. ..... 464
229. Removing Wireless Modem, Item SPV.0060.2019. ..... 465
230. Salvage Microwave Detector Assembly, Item SPV.0060.2020. ..... 465
231. Install Salvaged Microwave Detector Assembly, Item SPV.0060.2021. ..... 466
232. Salvage Wireless Traffic Sensor Repeater, Item SPV.0060.2022. ..... 467

233. Install Wireless Traffic Sensor Repeater, Item SPV.0060.2023. ..... 468
234. Salvage Poles Type 5, Item SPV.0060.2024. ..... 469
235. Install Salvaged Poles Type 5, Item SPV.0060.2025. ..... 470
236. Install Conduit Into Buried Vault, Item SPV.0060.2026. ..... 471
237. Install Temporary Traffic Camera Assembly, Item SPV.0060.2027. ..... 472
238. Temporary Poles Wood 40-Foot, Item SPV.0060.2028. ..... 473
239. Install 5.8 GHz Ethernet Bridge, Item SPV.0060.2029. ..... 474
240. Install Cabinet Heater and Thermostat, Item SPV.0060.2030. ..... 475
241. Install Wavetronix Click 200 Module, Item SPV.0060.2031. ..... 475
242. Install Wavetronix Power Module, Item SPV.0060.2032. ..... 476
243. Install Wavetronix Detector Module, Item SPV.0060.2033. ..... 477
244. Install Cellular Antenna, Item SPV.0060.2034. ..... 478
245. Install Piezoelectric Axle Sensor, Item SPV.0060.2035. ..... 479
246. Concrete Control Cabinet Base ATR Special Type 7, Item SPV.0060.2037. ..... 480
247. Install ATR Controller Cabinet, Item SPV.0060.2038. ..... 481
248. Wireless Traffic Sensor, Item SPV.0060.2040. ..... 482
249. Wireless Traffic Sensor Repeater, Item SPV.0060.2042. ..... 483
250. Wireless Traffic Sensor Contact Closure Module, Item SPV.0060.2043; Extension Card, Item SPV.0060.2044. ..... 484
251. Removing Temporary Traffic Camera Assembly, Item SPV.0060.2045. ..... 486
252. Install Fiber Optic Media Converter, Item SPV.0060.2050. ..... 487
253. Multi-cell Conduit Connection, Item SPV.0060.2052. ..... 487
254. Supplemental Traffic Signal Cabinet Concrete Base, Item SPV.0060.3001. ..... 488
255. Install Traffic Cabinet Base, Item SPV.0060.3101. ..... 489
256. Install Traffic Signal Base, Item SPV.0060.3102. ..... 490
257. Traffic Polymer Concrete Vault 13-Inch x 24-Inch x 18-Inch, Item SPV.0060.3103; 17-Inch x 30-Inch x 18-Inch, Item SPV.0060.3104. ..... 490
258. Anchor Assemblies Sign Bridge Structures, ItemSPV.0060.4100; Anchor Assemblies Noise Barrier Structures, Item SPV.0060.4105. ..... 492
259. Pile Dynamic Analyzer (PDA) Testing, Item SPV.0060.4110; Pile Dynamic Analyzer (PDA) Restrikes, Item SPV.0060.4115; CAse Pile Wave Analysis Program (CAPWAP) Evaluation, Item SPV.0060.4116. ..... 493
260. Bearings High-Load Multi-Rotational Fixed, Item SPV.0060.4120; Guided, Item SPV.0060.4125. ..... 497
261. Floor Drain Special, Item SPV.0060.4130. ..... 506
262. Anchor Slab Inlet Cover Special, Item SPV.0060.4135. ..... 507
263. Tieback Anchors, Item SPV.0060.4140; Tieback Anchor Performance Tests, Item SPV.0060.4145. ..... 507
264. Drilled Foundation Shaft Base Grouting, Item SPV.0060.4150. ..... 521
265. Thermal Integrity Profiler (TIP) Testing, Drilled Foundation Shaft 59.06-Inch, Item SPV.0060.4155; Drilled Foundation Shaft 98.43-Inch, Item SPV.0060.4160; Drilled Foundation Shaft 118.11-Inch, Item SPV.0060.4162; Wall Secant Pile 47.24-Inch, Item SPV.0060.4165. ..... 526
266. Polymer Concrete Pull Boxes 13x24x18-Inch, Item SPV.0060.4170. ..... 529
267. Concrete Base Sleeves, Item SPV.0060.4175. ..... 532
268. Bar Couplers No. 14, Item SPV.0060.4180; No. 18, Item SPV.0060.4181. ..... 532

269. Temporary Access Gates, Item SPV.0060.4185. 533
270. Permanent Connection to Existing 24-Inch Water Main, Item SPV.0060.5000. 534
271. Adjusting Water Valves Wauwatosa, Item SPV.0060.5001 535
272. Adjusting Water Valves Milwaukee, Item SPV.0060.5002. 536
273. Adjusting Water Valves West Allis, Item SPV.0060.5003. 537
274. Cut and Cap Water Main, Item SPV.0060.5004. 537
275. Air Release Valve, Item SPV.0060.5005 538
276. Abandoning Air Release Manhole, Item SPV.0060.5006. 539
277. Hydrant Assembly Relocation, Item SPV.0060.5007. 539
278. Relocate Hydrant, Item SPV. 0060.5008. 541
279. MMSD Sanitary Manhole Precast, Item SPV.0060.5101 542
280. MMSD Sanitary Manhole Reconstruct, Item SPV.0060.5102. 545
281. MMSD Sanitary Manhole Extension, Item SPV. 0060.5103. 548
282. MMSD Manhole Rehabilitation with Pure Fused Calcium Aluminate Coatings, Item SPV. 0060.5104. 551
283. Removing MMSD Sanitary Manhole, Item SPV.0060.5105. 556
284. Abandoning MMSD Sanitary Manhole with Concrete Cap, Item SPV. 0060.5106. 557
285. Adjusting Sanitary Manhole; Item SPV. 0060.5200. 559
286. Reconstruct Sanitary Manhole, Item SPV.0060.5201. 560
287. Indigo, Wild Baptisia Cont #1, Item SPV.0060.6000; Catmint, Walker's Low #1 Cont, Item SPV.0060.6001; Coneflower, Magnus Purple #1 Cont, Item SPV.0060.6002; Daylilly, Romantic Returns #1 Cont, Item SPV.0060.6003; Grass, Karl Foerster #1 Cont, Item SPV.0060.6004; Grass, Overdam Feather Reed #1 Cont, Item SPV.0060.6005; Grass, Northwind Switch #1 Cont, Item SPV.0060.6006; Grass, Prairie Dropseed #1 Cont, Item SPV.0060.6007; Penstemon, Husker Red #1 Cont, Item SPV.0060.6008; Sage, Caradonna Meadow #1 Cont, Item SPV.0060.6009; Sage, Russian #1 Cont, Item SPV.0060.6010; Sunflower, False #1 Cont, Item SPV.0060.6011; Weed, Chocolate Joe-Pye #1 Cont, Item SPV.0060.6012. 563
288. Southwest Core Pond Outlet Storm Sewer Structure, Item SPV.0060.8002. 565
289. Inlet Covers Type 57, Item SPV.0060.8004. 565
290. Cover Plates Left-In-Place, Item SPV.0060.8005. 566
291. Reconnect Storm Sewer Laterals, Item SPV.0060.8007. 567
292. Manhole 9-Foot Special, Item SPV.0060.8012; 10-Foot Special, Item SPV.0060.8013. 568
293. Pipe Connection to Existing Structure, Item SPV.0060.8015. 568
294. Removing Bulkhead, Item SPV.0060.8018. 569
295. Inlet Covers Type 27-M Bolted, Item SPV.0060.8050. 570
296. Removing Welds from Sewer Access Covers, Item SPV.0060.8052 570
297. Remove and Cap Existing Drainage Storm Sewer Structure, Item SPV.0060.8062. 571
298. Removing Cover Plates Left In Place, Item SPV.0060.8065. 572
299. Welding Sewer Access Covers, Item SPV.0060.8080. 573
300. Intermediate Jacking Station, Item SPV.0060.8099; Storm Sewer Construction, Item SPV.0090.8096. 574

301. Storm Sewer Structure Z4235, Item SPV.0060.8502; Structure Z4121, Item SPV.0060.8503; Structure Z4192, Item SPV.0060.8504; Structure Z4133, Item SPV.0060.8505. ..... 589
302. Pavement Cleanup Project 1060-33-81, Item SPV.0075.0002; Project 1060-34-82, Item SPV.0075.0003. ..... 590
303. Obstructions Trenchless Utility Construction, Item SPV.0075.0010. ..... 592
304. Obstructions Drilled Foundation Shaft, Item SPV.0075.4200; Wall Secant Pile, Item SPV.0075.4205; Foundation Drilling, Item SPV.075.4210; Sign Supports Concrete Masonry, Item SPV.0075.4215. ..... 594
305. Obstructions Tunnel Excavation, Item SPV.0075.8097. ..... 596
306. Ice HPC Hot Weather Concreting, Item SPV.0085.0900. ..... 597
307. Post-Tensioning Integral Pier Cap, Item SPV.0085.4310. ..... 598
308. Removing Pavement Markings Water Blasting, Item SPV.0090.0010. ..... 619
309. Removing Concrete Barrier Precast, Item SPV.0090.0011. ..... 620
310. Removing Reinforced Concrete Pipe, Item SPV.0090.0014; Removing Steel Pipe, Item SPV.0090.0015; Removing Miscellaneous Pipe, Item SPV.0090.0016. ..... 621
311. Fence Screening, Item SPV.0090.0029. ..... 622
312. Concrete Barrier Type S42C With 48-Inch Pan, Item SPV.0090.0100; Type S56 Special, Item SPV.0090.0101; Type S56A Special, Item SPV.0090.0102; Type S42 With 24-Inch Pan, Item SPV.0090.0103; Vertical Back Type S42 Modified With 24-Inch Pan, Item SPV.0090.0104; Vertical Back Type S56 Modified With 24-Inch Pan, Item SPV.0090.0105; Vertical Back Type S56 Modified, Item SPV.0090.0106; Type S32C, Item SPV.0090.0108; Type S32 With 24-Inch Pan, Item SPV.0090.0110; Type S42 With 48-Inch Pan, Item SPV.0090.0112. ..... 623
313. Maintain and Remove Concrete Barrier Temporary Precast, Item SPV.0090.0124. .... 625
314. Pipe Underdrain 6-Inch Special, Item SPV.0090.0126. ..... 626
315. Concrete Curb and Gutter 4-Inch Sloped 60-Inch Type A, Item SPV.0090.0152. ..... 627
316. Concrete Gutter 42-Inch, Item SPV.0090.0153; 48-Inch, Item SPV.0090.0154; 66-Inch, Item SPV.0090.0155. ..... 628
317. Pavement Marking Grooved Preformed Thermoplastic Stop Line 18-Inch, Item SPV.0090.0300; Stop Line 24-Inch, Item SPV.0090.0301; Crosswalk 6-Inch, Item SPV.0090.0302. ..... 628
318. Install Temporary Pavement Marking Reflective Orange Paint 4-Inch, Item SPV.0090.0320; 8-Inch, Item SPV.0090.0322; 24-Inch, Item SPV.0090.0324; Install Temporary Pavement Marking Orange Arrows, Item SPV.0060.0320. ..... 631
319. Install Temporary Pavement Marking Orange Epoxy 4-Inch, Item SPV.0090.0326; 8-Inch, Item SPV.0090.0328. ..... 633
320. Glare Screens Temporary, Item SPV.0090.0400. ..... 634
321. Concrete Barrier Temporary Precast Anchoring, Item SPV.0090.0410. ..... 635
322. Concrete Barrier Temporary Precast Anchored on Bridge, Item SPV.0090.0412. ..... 636
323. Concrete Barrier Temporary Precast Anchored on Asphaltic Bridge Overlay, Item SPV.0090.0414. ..... 637
324. Fence Temporary 6-Foot, Item SPV.0090.0600. ..... 638
325. Fence Chain Link Vinyl Coated 6-Foot, Item SPV.0090.0610. ..... 639
326. Minor Retaining Wall R-2, Item SPV.0090.0901 ..... 640

327. Cable Aerial Aluminum 6 AWG Quadruplex, Item SPV.0090.1005; 4 AWG Quadruplex, Item SPV.0090.1006; 2 AWG Quadruplex, Item SPV.0090.1007; 1/0 AWG Quadruplex, Item SPV.0090.1008. ..... 641
328. Cable in Duct 5-6 AWG, Item SPV.0090.1026. ..... 643
329. Conduit Reinforced Thermosetting Resin 3/4-Inch, Item SPV.0090.1027. ..... 644
330. Liquidtight Flexible Metallic Conduit ¾-Inch, Item SPV.0090.1053. ..... 644
331. Wireway Fiberglass 4-Inch x 4-Inch, Item SPV.0090.1054. ..... 646
332. Wireway Metallic 2.5-Inch x 2.5-Inch, Item SPV.0090.1055. ..... 646
333. Fence Decorative Bridge, Item SPV.0090.4400; Fence Decorative Wall, Item SPV.0090.4410. ..... 647
334. Fence Decorative HAST Structure Mounted, Item SPV.0090.4411; Fence Decorative HAST Ground Mounted, Item SPV.0090.0605. ..... 650
335. Install Piezoelectric Axle Sensor Slots, Item SPV.0090.2001 ..... 654
336. Loop Detector Lead In Cable Special, Item SPV.0090.2002. ..... 655
337. Piling Sleeves, Item SPV.0090.4415. ..... 656
338. Foundation Drilling Special, Item SPV.0090.4420. ..... 657
339. Wall Secant Pile 47.24-Inch, Item SPV.0090.4425. ..... 659
340. Drilled Foundation Shaft 59.06-Inch, Item SPV.0090.4430; Drilled Foundation Shaft 98.43-Inch, Item SPV.0090.4435; Drilled Foundation Shaft 118.11-Inch, Item SPV.0090.4440. ..... 677
341. Removing Temporary Shoring Left In Place, Item SPV.0090.4450. ..... 696
342. Fence Chain Link Vinyl Coated 2.75-FT., Item SPV.0090.4455. ..... 697
343. Piling CIP Concrete 16 X 0.50-Inch Special B-40-869, Item SPV.0090.4460; Piling CIP Concrete 16 X 0.50-Inch Special B-40-870, Item SPV.0090.4465; Piling Steel HP 14-Inch x 73 LB Special B-40-882, Item SPV.0090.4470; Piling Steel HP 14-Inch x 73 LB Special B-40-883, Item SPV.0090.4475. ..... 698
344. Ductile Iron (DI) AWWA C-151 CL 55 Water Main 24-Inch, Item SPV.0090.5000. ..... 699
345. Steel Casing w/ PVC 12-Inch Carrier, Item SPV.0090.5001; Steel Casing 30-Inch, Item SPV.0090.5005. ..... 706
346. Water Main 12-Inch Ductile Iron Excavated Backfill, Item SPV.0090.5002. ..... 709
347. Water Main 12-Inch PVC Excavated Backfill, Item SPV.0090.5003; 16-Inch PVC Excavated Backfill, Item SPV.0090.5006. ..... 713
348. Remove Water Main Item SPV.0090.5004. ..... 717
349. Water Main 16-Inch PVC Carrier, Item SPV.0090.5007. ..... 718
350. Abandoning Sanitary Sewer 15-Inch, Item SPV.0090.5101; Abandoning Sanitary Sewer 16-Inch, Item SPV.0090.5102. ..... 720
351. MMSD Sanitary Sewer 16-Inch PVC C905 DR18, Item SPV.0090.5103. ..... 721
352. Steel Casing w/ 15-Inch Sanitary Sewer Carrier, Item SPV.0090.5104 ..... 724
353. Pipe Underdrain Exploration, Item SPV.0090.8025; Storm Sewer Lateral Exploration, Item SPV.0090.8026. ..... 728
354. Drain Slotted Vane Longitudinal, Item SPV.0090.8030; Temporary, Item SPV.0090.8035. ..... 729
355. Lining 96-Inch Reinforced Concrete Storm Sewer Pipe, Item SPV.0090.8090. ..... 730
356. Survey Project 1060-33-81, Item SPV.0105.0001; Survey Project 1060-43-81, Item SPV.0105.0002; Survey Project 1060-34-82, Item SPV.0105.0007. ..... 737

357. Concrete Pavement Joint Layout, Item SPV.0105.0003..... 740
358. Removing Adler Utility Tunnel, Item SPV.0105.0010. ..... 741
359. Moving Sign Bridge Cantilevered S-40-128, Item SPV.0105.0400..... 743
360. Maintenance of Lighting Systems, Item SPV.0105.1006..... 743
361. Lighting System Integrator, Item SPV.0105.1007..... 747
362. Transporting and Installing State Furnished Adaptive Traffic Signal Equipment W. Wisconsin Avenue and N. 95th Street, Item SPV.0105.3001..... 748
363. Install Fiber Optic Communications in Cabinet W. Wisconsin Avenue and N. 95th Street, Item SPV.0105.3002..... 750
364. Transporting Signal and Lighting Materials W. Wisconsin Avenue and N. 95th Street, Item SPV.0105.3101..... 751
365. Trial Drilled Foundation Shaft 118.11-Inch, Item SPV.0105.4520..... 752
366. Trial Secant Wall Panel 47.24-Inch, Item SPV.0105.4525. ..... 754
367. Expansion Device Modular LRFD B-40-786, Item SPV.0105.4530; B-40-787, Item SPV.0105.4535; B-40-853, Item SPV.0105.4540; B-40-854, Item SPV.0105.4545; B-40-856, Item SPV.0105.4550. ..... 756
368. Vibration Control and Monitoring of 96-inch Storm Sewer, Item SPV.0105.4560. ..... 760
369. Galvanized Steel Grating, Item SPV.0105.4565. ..... 762
370. Metalizing B-40-787, Item SPV.0105.4570. ..... 763
371. State-Furnished Water Booster Station, Item SPV.0105.5000. ..... 769
372. Abandon Temporary Connection and Existing Water Main, Item SPV.0105.5001..... 773
373. Chevron Solar Powered Sign System Assembly Ramp SW, Item SPV.0105.6002; Ramp NE, Item SPV.0105.6004; Ramp NW, Item SPV.0105.6006; Ramp WN, Item SPV.0105.6008; Ramp SE, Item SPV.0105.6010; Ramp WS, Item SPV.0105.6012. ..... 774
374. Control of Water, Item SPV.0105.8098..... 779
375. Geotechnical Instrumentation, Item SPV.0105.8099. ..... 785
376. Timber Lagging, Item SPV.0110.4600..... 793
377. Vibration Monitoring, Item SPV.0135.0001. ..... 794
378. Longitudinal Grooving Bridge Deck, Item SPV.0165.4700..... 797
379. Wall Concrete Panel Mechanically Stabilized Earth LRFD/QMP, Item SPV.0165.4710. ..... 798
380. Mechanically Stabilized Earth Backfill Abutment, Item SPV.0165.4715..... 811
381. Wall Concrete Panel Mechanically Stabilized Earth LRFD/LFCF, Item SPV.0165.4720. ..... 812
382. Wall Wire Faced Mechanically Stabilized Earth LRFD/QMP, Item SPV.0165.4730. ..... 825
383. Wall Modular Block Mechanically Stabilized Earth LRFD, Item SPV.0165.4740. ..... 836
384. Wall Concrete Panel With Traffic Barrier Mechanically Stabilized Earth LRFD/QMP, Item SPV.0165.4750. ..... 846
385. Wall Concrete Panel with Traffic Barrier Mechanically Stabilized Earth LRFD/LFCF, Item SPV.0165.4760. ..... 860
386. Temporary Wall Wire Faced Mechanically Stabilized Earth LRFD/QMP, Item SPV.0165.4770. ..... 873
387. Temporary Shoring Railroad, Item SPV.0165.4775..... 884
388. Geocomposite Drain Board, Item SPV.0165.4780. ..... 886

389. Concrete Staining Previously Constructed Structure, Item SPV.0165.4785. ..... 887
390. Concrete Staining Multi-Color Previously Constructed Structure, Item SPV.0165.4786. ..... 889
391. Prestressed Precast Concrete Wall Panel, Item SPV.0165.4790. ..... 892
392. Structure Waterproofing Special, Item SPV.0165.4795. ..... 899
393. Shaft Excavation Support System, Item SPV.0165.8095. ..... 901
394. Joint Sealing, Item SPV.0180.0101. ..... 910
395. Concrete Pavement Repair Special, Item SPV.0180.0102. ..... 911
396. Concrete Pavement 12-Inch Special, Item SPV.0180.0105. ..... 912
397. Asphaltic Material Binder, Item SPV.0180.0106. ..... 917
398. Topsoil Special, Item SPV.0180.0200. ..... 919
399. Geogrid Reinforcement, Item SPV.0180.0800. ..... 921
400. Soil Drying, Item SPV.0180.0801; Soil Drying Agent, Item SPV.0195.0801. ..... 924
401. Slope Paving Crushed Aggregate Special, Item SPV.0180.4800. ..... 927
402. Cold Patch, Item SPV.0195.0100. ..... 929
403. HMA Longitudinal Joint Repair, Item SPV.0195.0120. ..... 931
404. Management of Solid Waste, Item SPV.0195.0700. ..... 932

**SPECIAL PROVISIONS**

## 1. General.

Perform the work under this construction contract for Project 1060-33-81, Zoo IC – Zoo Interchange Phase 2, Lincoln – Bluemound, 121st to 70th, USH 45, Milwaukee County, Wisconsin, Project 1060-34-82, Zoo IC, IH 894 NB Auxiliary Lane, Oklahoma Avenue to National Avenue, IH 894, Milwaukee County, Wisconsin, and Project 1060-43-81, East West Freeway, Underwood Creek Parkway and 121st Street Bridges, IH 94, Milwaukee County, Wisconsin as the plans show and execute the work as specified in the State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction, 2015 Edition, as published by the department, and these special provisions.

Perform the sanitary sewer and water main work in accordance to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition (SSSW) and addendums. If there is a discrepancy or conflict between the referenced specification and the standard specifications regarding contract administration, part 1 of the standard specifications governs.

If all or a portion of the plans and special provisions are developed in the SI metric system and the schedule of prices is developed in the US standard measure system, the department will pay for the work as bid in the US standard system.
100-005 (20141107)

## 2. Scope of Work.

The work under this contract shall consist of removals, grading, dense graded base, concrete pavement, concrete curb and gutter, concrete sidewalk, concrete barrier, asphaltic surface, HMA pavement, storm sewer, sanitary sewer, water main, erosion control, pond construction, permanent signing, traffic signals, traffic control, pavement marking, street lighting, structures, bridges, retaining walls, noise barriers, overhead sign structures, restoration, and all incidental items necessary to complete the work as shown on the plans and included in the proposal and contract.

**Structures:**

**Bridges**

| | | | |
|---|---|---|---|
| B-40-850 | B-40-858 | B-40-795 | B-40-872 |
| B-40-851 | B-40-859 | B-40-796 | B-40-882 |
| B-40-786 | B-40-790 | B-40-797 | B-40-883 |
| B-40-787 | B-40-788 | B-40-869 | B-40-871 |
| B-40-853 | B-40-860 | B-40-870 | B-40-873 |
| B-40-854 | B-40-861 | B-40-867 | B-40-874 |
| B-40-856 | | | |

**Noise Barriers**

| | | | |
|---|---|---|---|
| N-40-61 | N-40-62 | N-40-63 | N-40-64 |
| N-40-66 | N-40-67 | N-40-76 | N-40-77 |
| N-40-78 | N-40-79 | | |

**Retaining Walls**

| | | | |
|---|---|---|---|
| R-40-467 | R-40-468 | R-40-469 | R-40-470 |
| R-40-495 | R-40-497 | R-40-498 | R-40-505 |
| R-40-507 | R-40-509 | R-40-511 | R-40-516 |
| R-40-518 | R-40-520 | R-40-522 | R-40-524 |
| R-40-525 | R-40-527 | R-40-529 | R-40-532 |
| R-40-534 | R-40-535 | R-40-540 | R-40-558 |
| R-40-559 | R-40-630 | R-40-631 | R-40-655 |

**Sign Structures**

| | | | |
|---|---|---|---|
| S-40-03 | S-40-08 | S-40-10 | S-40-11 |
| S-40-13 | S-40-15 | S-40-19 | S-40-20 |
| S-40-23 | S-40-26 | S-40-29 | S-40-30 |
| S-40-31 | S-40-33 | S-40-34 | S-40-35 |
| S-40-39 | S-40-40 | S-40-41 | S-40-42 |
| S-40-45 | S-40-46 | S-40-52 | S-40-53 |
| S-40-55 | S-40-74 | S-40-80 | S-40-81 |
| S-40-82 | S-40-84 | S-40-86 | S-40-91 |
| S-40-93 | S-40-96 | S-40-97 | S-40-98 |
| S-40-102 | S-40-103 | S-40-105 | S-40-106 |
| S-40-110 | S-40-111 | S-40-112 | S-40-113 |
| S-40-114 | S-40-115 | S-40-152 | S-40-782 |
| S-40-787 | S-67-0047 | | |

104-005 (20090901)

## 3. Mandatory Pre-Bid Meeting.

*Supplement standard spec 102.3.1 with the following:*

Prospective bidders are required to attend a mandatory pre-bid meeting on August 20, 2015 from 1:00 PM to 4:00 PM at the Tommy G. Thompson Youth Center at 640 South 84th Street, Milwaukee, WI 53214.

The meeting agenda will include the following:

- Corridor Overview

- Zoo IC – Zoo Interchange Phase 2; IH 894 NB Auxiliary Lane, Oklahoma Avenue to National Avenue; East West Freeway – Underwood Creek Parkway and 121st Street Bridges.

  The meeting will discuss project specific issues for IDs 1060-33-81, 1060-34-82 and 1060-43-81

- The Owner Controlled Insurance Program (OCIP)

  The Zoo Interchange project will be constructed under the umbrella of an Owner Controlled Insurance Program (OCIP). Contractor/Consultant participation in this Corridor Project is mandatory and requires enrollment into the OCIP.

  This meeting will provide understanding of the coverage provided by the OCIP, the bid deduction process and the coverage needed outside of the OCIP. It is critical that CFO's, Risk Manager/Insurance Broker or Agent, and Estimators attend this meeting.

  Please contact Chris Luttrell at (608) 381-2340, or chris.luttrell@dot.wi.gov with any questions regarding the OCIP.

- Safety

- Contractor Compliance

- DBE Business Outreach Provision

No meeting minutes will be prepared, but a published response will be sent out addressing all questions raised at the meeting.
SEF Rev. 14_0602

## 4. Prosecution and Progress.

Begin work within ten calendar days after the engineer issues a written notice to do so.

Provide the start date to the engineer in writing within a month after executing the contract but at least 14 calendar days before the preconstruction conference. Upon approval, the engineer will issue the notice to proceed within ten calendar days before the approved start date.

To revise the start date, submit a written request to the engineer at least two weeks before the intended start date. The engineer will approve or deny that request based on the conditions cited in the request and its effect on the department's scheduled resources.

Furnish a written request for a conditional notice to proceed to the engineer for approval to begin work prior to January 1, 2016. The request for a conditional notice to proceed shall be specific and include description of work, work zones, schedule, haul routes and traffic impacts. The conditional notice to proceed will not affect the completion date. All construction equipment, traffic impacts and activities utilized or mobilized prior to January 1, 2016 shall not disrupt the ongoing construction contracts listed in the Other Contracts section of the specifications.

The completion date is based on an expedited work schedule and may require extraordinary forces and equipment; work on Saturdays, Sundays, and nationally recognized legal holidays; and work at night.

Indicate on the proposed schedule of operations that a large force and adequate equipment will be needed to assure that the work will be completed within the established contract time.

Be advised that there may be multiple mobilizations and/or remobilizations to complete construction operations, for example such items as: grading, concrete pavement repair/replacement, paving, traffic control, signing, temporary and permanent pavement marking, finishing items and other incidental items. No additional payment will be made, by the department, for additional mobilizations.

There will be no adverse weather delay or additional compensation for cold weather construction, unless otherwise provided for in the contract.

After written notice to proceed, and prior to Final Acceptance of the work, assist with maintenance of existing roadways and bridges as specified in standard spec 104.6.1. This assistance may include performance of work covered under pay items or accommodating local repair forces within the work zones. Maintain all newly constructed work as specified in standard spec 104.6.1.

Place topsoil in all graded areas as designated by the engineer immediately after grading has been completed. Fertilize, seed and mulch or fertilize and sod all areas within five calendar days after placement of topsoil.

**CPM Progress Schedule**
Refer to the Baseline CPM Progress Schedule items elsewhere in these special provisions.

**Schedule of Operations**
Construction Staging and Traffic Control plans for this project were developed in conjunction with the ongoing Zoo Interchange Project 1060-33-80. Additional coordination with Wisconsin Constructors II, LLC, the contractor on Zoo Interchange Project 1060-33-80, is anticipated and all traffic shifts and stage changes in this project that affect Project 1060-33-80 will need to be approved by the engineer.

Do not start work on IH 94 east of Station 196EW+00 as shown in the plans in Stage 3A before June 27, 2016 or as approved by the engineer.

Traffic shifts shown in a given stage may occur at different times during that stage depending on the controlling elements for a given traffic movement. The department anticipates that the schedule for each stage shall be as follows:

Anticipated schedule:

**Do not move to the next stage until all work in the current stage is completed or as approved by the engineer.**

**Project ID # 1060-33-81**

**Stage 1 Construction:**

Freeway and Ramp Construction

- Begin sub-structure construction of B-40-786, B-40-787, B-40-788, B-40-790, B-40-796, B-40-853, B-40-854, B-40-856, B-40-870, B-40-872, B-40-874, B-40-858, B-40-867 and B-40-883
- Begin construction of R-40-524, R-40-532, R-40-534, R-40-540 and R-40-558
- Remove B-40-96
- Remove portion of B-40-94
- Construct Temporary Roadway EWG
- Construct storm sewer between MH Z2683 and MH Z2431
- Place liner in existing storm sewer upstream of MH Z4192 and upstream of MH Z4133
- Install Pipe P2556 during the closure of southbound IH 894/USH 45 for the demolition of bridge B-40-94.
- Install Pipe P3093 prior to beginning foundation construction for pier WN 08 of B-40-856.
- Construct Water Main at Lincoln Avenue

- Construct IH 894 Auxiliary Lanes project, ID # 1060-34-82

Local Road Construction

Greenfield Avenue

- Construct Minor Retaining Wall R-2

**Stage 2 Construction:**

Freeway and Ramp Construction

- Remove portion of B-40-113, B-40-127 and B-40-143
- Begin construction of B-40-795, B-40-860 and B-40-861
- Continue construction of B-40-786, B-40-787, B-40-788, B-40-790, B-40-796, B-40-853, B-40-854, B-40-856, B-40-870, B-40-872, B-40-874, B-40-858 and B-40-883
- Begin construction of R-40-495, R-40-518, R-40-527
- Continue construction of R-40-524, R-40-532, R-40-534 and R-40-540
- Construct portion of eastbound IH 94 roadway
- Construct portion of northbound IH 894/USH 45 roadway
- Continue storm sewer construction between MH Z2683 and MH Z2431
- Construct temporary widening NSD, SLC, NSJ, EWQ**,** EWR, and SWC
- Begin construction of R-40-511 and R-40-535
- Begin construction of the remainder of R-40-467
- Construct IH 894/USH 45 southbound shoulder rehabilitation
- Construct Water Main at Beecher Street
- Construct Pipe P5309 during night time closure of Ramp SCA
- Construct Pipe P2389 during night time closure of Ramp GB
- Construct Pipe P2656 during night time closure of West to South Ramp
- Construction of retaining walls R-40-630, R-40-631 and R-40-655, and placement of embankment for Bike Path B. Do not pave Bike Path B until stage 8, to allow sufficient time for settlement. In Stage 8, check the embankment elevation and place any additional material needed to reestablish the subgrade line shown in the plans. Paving operations may commence upon completion.

Local Road Construction

W. Wisconsin Avenue.

- Begin construction of B-40-867
- Begin construction of R-40-558
- Begin roadway construction

Adler Street, Chester Street and O'Connell Street

- Complete Streetscaping

Greenfield Avenue

- Complete Streetscaping along berm

**Stage 3A Construction:**

Freeway and Ramp Construction

- Remove remaining portion of B-40-113, B-40-127 and B-40-143
- Remove B-40-111
- Continue construction of B-40-786, B-40-787, B-40-788, B-40-790, B-40-795, B-40-796, B-40-853, B-40-854, B-40-856, B-40-860, B-40-861, B-40-870, B-40-872, B-40-874, B-40-858, and B-40-883
- Continue construction of R-40-495, R-40-518, R-40-520, R-40-524, R-40-525, R-40-527, R-40-532, R-40-534, R-40-535 and R-40-540
- Begin construction of R-40-545
- Construct temporary widening NSH, NSM, EWS, EWT, WSC, EWU and a portion of NSN
- Construct portion of eastbound IH 94 roadway
- Construct portion of westbound IH 94 roadway
- Construct portion of northbound IH 894/USH 45 roadway

Local Road Construction

W. Wisconsin Avenue.

- Continue construction of B-40-867
- Continue construction of R-40-558
- Continue roadway construction

**Stage 3B Construction:**

Freeway and Ramp Construction

- Continue construction of B-40-786, B-40-787, B-40-788, B-40-790, B-40-795, B-40-796, B-40-853, B-40-854, B-40-856, B-40-860, B-40-861, B-40-870, B-40-872, B-40-874, B-40-858, and B-40-883
- Continue construction of R-40-495, R-40-518, R-40-520, R-40-524, R-40-525, R-40-527, R-40-532, R-40-534, R-40-535, R-40-540 and R-40-545
- Construct temporary widening WSB, WJA, SBA and EWP
- Construct portion of eastbound IH 94 roadway
- Construct portion of westbound IH 94 roadway
- Construct portion of NB IH 894/USH 45 roadway

Local Road Construction

W. Wisconsin Avenue.

- Continue construction of B-40-867
- Continue roadway construction

**Stage 4A Construction:**

Freeway and Ramp Construction

- Remove remaining portion of B-40-94
- Remove portion of B-40-754
- Continue construction of B-40-788, B-40-790, B-40-795, B-40-853, B-40-854, B-40-856, B-40-860, B-40-861, B-40-870, B-40-872, B-40-874 and B-40-858

- Continue construction of R-40-518, R-40-520, R-40-540 and R-40-545
- Begin construction of R-40-557
- Construct Minor Retaining Wall R-1
- Construct portion of eastbound IH 94 roadway
- Construct portion of westbound IH 94 roadway
- Construct portion of northbound USH 45 roadway
- Construct Water Main at Wisconsin Avenue
- Construct portion of Southwest Core Pond
- Construct Pipe P4567 during night time closure of IH 94 West Bound

Local Road Construction

W. Wisconsin Avenue.

- Continue construction of B-40-867
- Begin construction of R-40-559
- Continue roadway construction

**Stage 4B Construction:**

Freeway and Ramp Construction

- Continue construction of B-40-788, B-40-790, B-40-795, B-40-853, B-40-854, B-40-856, B-40-860, B-40-861, B-40-870, B-40-872, B-40-874 and B-40-858
- Continue construction of R-40-518, R-40-520, R-40-540, R-40-545 and R-40-557
- Construct portion of eastbound IH 94 roadway
- Construct portion of westbound IH 94 roadway
- Construct portion of northbound USH 45 roadway
- Construct portion of the W-N ramp

Local Road Construction

W. Wisconsin Avenue.

- Continue construction of B-40-867
- Continue construction of R-40-559
- Continue roadway construction

**Stage 5 Construction:**

Freeway and Ramp Construction

- Remove B-40-97, B-40-104 and B-40-753
- Continue construction of B-40-788, B-40-790, B-40-795, B-40-860, B-40-861 and B-40-854
- Continue construction of R-40-545
- Construct portion of eastbound IH 94 roadway
- Construct portion of westbound IH 94 roadway
- Continue construction of the W-N ramp
- Construct temporary widening SWD, EWV and ENA
- Continue construction of Southwest Core Pond.

Local Road Construction

W. Wisconsin Avenue.

- Continue construction of B-40-867
- Continue construction of R-40-559
- Continue roadway construction

**Stage 6A Construction:**

Freeway and Ramp Construction

- Remove B-40-97, B-40-101, B-40-105, B-40-112, B-40-114, B-40-126 and B-40-144
- Remove remaining portion of B-40-754
- Continue construction of B-40-788, B-40-790, B-40-795, B-40-850, B-40-860, B-40-861, and B-40-854
- Begin construction of B-40-797, B-40-851, B-40-869, B-40-871, B-40-873 and B-40-882
- Continue construction of R-40-527, R-40-532, R-40-534, R-40-540 and B-40-545
- Begin construction of R-40-468, R-40-469, R-40-470, R-40-497, R-40-498, R-40-507, R-40-509, R-40-522, R-40-525, R-40-529 and R-40-505
- Construct temporary widenings WSD and EWW and a portion of NSN
- Construct portion of westbound IH 94 roadway
- Construct southbound IH 894/USH 45 roadway
- Complete construction of Southwest Core Pond

Local Road Construction

- None

**Stage 6B Construction:**

Freeway and Ramp Construction

- Continue construction of B-40-788, B-40-790, B-40-850, B-40-854, B-40-795, B-40-797, B-40-851, B-40-860, B-40-861, B-40-869, B-40-871, B-40-873 and B-40-882
- Continue construction of R-40-534, R-40-540, B-40-545, R-40-468, R-40-469, R-40-470, R-40-497, R-40-498, R-40-507, R-40-509, R-40-522, R-40-525, R-40-527, R-40-529, R-40-532 and R-40-505
- Construct temporary widenings NSQ and ENB and portions of NSN
- Continue construction of a portion of westbound IH 94 roadway
- Continue construction of southbound IH 894/USH 45 roadway

Local Road Construction

- None

**Stage 7 Construction:**

Freeway and Ramp Construction

- Continue construction of B-40-795, B-40-850, B-40-854, B-40-851, B-40-860 and B-40-861
- Continue construction of R-40-470, R-40-497, R-40-498, R-40-505, R-40-507, R-40-509, , R-40-522, R-40-525, R-40-529 and R-40-545
- Construct R-40-516 and R-40-520
- Construct temporary pavements NSN and NSP
- Construct IH 94 roadway pavement gaps
- Construct IH 894/USH 45 roadway pavement gaps

Local Road Construction
- Construct Curtis Road
- Construct 100th Street south of Greenfield Avenue

**Stage 8 Construction:**

Freeway and Ramp Construction
- Remove B-40-537 and B-40-538
- Continue construction of B-40-795, B-40-859 and B-40-860
- Continue construction of R-40-516
- Construct IH 894/USH 45 roadway pavement gaps

Local Road Construction
- Construct 100th Street north of Greenfield Avenue
- Construct Schlinger Avenue
- Remove Existing Underpass
- Pave the Hank Aaron State Trail

**Stage 9 Construction:**

Freeway and Ramp Construction
- Construct median and pavement gaps

Local Road Construction
- Continue construction of 100th Street north of Greenfield Avenue
- Continue construction of Schlinger Avenue

**Project ID # 1060-34-82**

**Stage 1A Construction:**
- Begin construction of portion of IH 894 NB outside auxiliary lane and shoulder
- Begin construction of S-40-861 and S-40-862

**Stage 1B Construction:**
- Complete construction of IH 894 NB outside auxiliary lane and shoulder
- Place permanent pavement marking
- Continue construction of S-40-861 and S-40-862

**Stage 2 Construction:**

- Continue construction of S-40-861 and S-40-862
- Complete restoration items

**Contractor Coordination**

Provide an individual to serve as the contractor's sole point of contact for field utility coordination and communication for the duration of the project.
SEF Rev. 13_1107

The City of West Allis has an existing 16-inch water main crossing IH 894/USH 45 near W. Becher Street at Station 216NS+04 and an existing 12-inch water main crossing IH 894/USH 45 near W. Lincoln Avenue at Station 203NS+30. Both crossings will be reconstructed as shown in the plans. Only one of these crossings can be taken out of service at a time. Reconstruct and adjust the water mains as shown in the plans. Contact Joe Burtch, (414) 302-8379 office, of the City of West Allis, ten working days in advance to coordinate outages of their facilities.

The City of Wauwatosa has an existing 24-inch water main crossing USH 45 near Wisconsin Avenue at Station 335NS+60. This crossing will be reconstructed as shown in the plans only after the Temporary Booster Station at Burleigh Road is installed and approved by the City of Wauwatosa. Contact Jim Wojcehowicz, (414) 479-8963, of the City of Wauwatosa Water, ten business days in advance to coordinate outages of their facilities.

The Wauwatosa Water Utility staff will inspect the construction of water main under this contract. Notify Jim Wojcehowicz, (414) 479-8963, for inspection ten working days prior to starting construction.

Coordinate traffic signal reconstruction at N. 95$^{th}$ Street and Wisconsin Avenue with the City of Milwaukee – Signals staff. The City of Milwaukee will remove and reinstall the signals at this intersection. Allow 5 calendar days for city staff to perform signal removals and 10 calendar days for signal installation. Provide written notice to Joseph Blakeman, (414) 286-8070 or Al Nichols, (414) 286-3686, of the City of Milwaukee, ten business days in advance to coordinate construction activities.

**Advance Notification**

Notify the engineer if there are any changes in the schedule, early completions, or cancellations of scheduled work. Coordinate the locations of messages of portable changeable message sign with the engineer and WisDOT STOC. Notify the engineer of proposed changes for alternate routes and detours and provide a revised signing plan for the review by and approval of the engineer.

Provide the engineer with a schedule of lane and ramp closures by 9:00 AM on Wednesday for the next ten calendar days. In addition, provide the following minimum advance notification to the engineer for incorporation into the Wisconsin Lane Closure System.

| | |
|---|---|
| Service Ramp Closures | 3 business days |
| Short Term System Ramp Closures | 7 calendar days |
| Freeway Lane Closures | 3 business days |
| Full Freeway Closures | 14 calendar days |
| Construction Stage Changes | 14 calendar days |
| Long Term System Ramp Closures | 14 calendar days |
| Detours | 14 calendar days |
| Local Road Lane Closures | 5 business days |
| Local Road/Intersection Full Closures | 14 calendar days |

Obtain prior acceptance from the engineer and the WisDOT Statewide Traffic Operations Center for Full Freeway Closures. Notify local emergency and police agencies seven calendar days prior to freeway closure.

Notify the engineer, businesses and residents that live along Schlinger Avenue and 100th Street, Fairview Avenue and Curtis Road, and along Wisconsin Avenue and 95th Street five business days in advance of restricting access to their houses or business.

Notify the engineer and Karl Hackbarth of the Milwaukee County Zoo at (414) 256-5413 five business days in advance of commencing any work that affects the Milwaukee County Zoo property or access to the Zoo Maintenance Facility.

**Ramp Closures**
All entrance and exit ramps shall be posted three business days in advance of their closure with dates and time of closure.

No two consecutive entrance ramps or consecutive exit ramps may be closed unless it is shown in the traffic control plans or approved by the engineer.

**Portable Changeable Message Signs**
Obtain acceptance from the engineer regarding the wording of all messages on portable changeable message signs prior to placing the message.

**Freeway and Ramp Work Restrictions**

**Definitions**
The following definitions apply to this contract for freeway work restrictions:

| | |
|---|---|
| **System Ramps** | Freeway to freeway ramps |
| **Service Ramps** | Freeway to/from local road ramps |

**Weekday Peak Hours**

- 5:30 AM – 9:00 AM Monday, Tuesday, Wednesday, Thursday, and Friday
- 2:00 PM – 7:00 PM Monday, Tuesday, Wednesday, Thursday, and Friday

**Weekday Midday**

- 9:00 AM – 2:00 PM Monday, Tuesday, Wednesday, Thursday, and Friday

**Weekend Peak Hours**

- 10:00 AM – 7:00 PM Saturday, Sunday

**Weekend Off-Peak Hours**

- 8:00 AM – 10:00 AM Saturday, Sunday
- 7:00 PM – 11:00 PM Saturday
- 7:00 PM – 9:30 PM Sunday

**Weekday Off-Peak Hours**

- 7:00 PM – 9:30 PM Monday, Tuesday, Wednesday, Thursday
- 7:00 PM – 11:00 PM Friday

**Night Time Hours**

- 9:30 PM – 5:30 AM (Sunday PM to Monday AM, Monday PM to Tuesday AM, Tuesday PM to Wednesday AM, Wednesday PM to Thursday AM, Thursday PM to Friday AM)
- 11:00 PM – 8:00 AM (Friday PM to Saturday AM, Saturday PM to Sunday AM)

**Full Freeway and System Ramp Closure/Hours**

- 11:00 PM – 4:30 AM (Sunday PM to Monday AM, Monday PM to Tuesday AM, Tuesday PM to Wednesday AM, Wednesday PM to Thursday AM, Thursday PM to Friday AM)
- 11:00 PM – 6 AM (Friday PM to Saturday AM, Saturday PM to Sunday AM)

Do not close freeway lanes or shoulders and ensure that the freeways are entirely clear for traffic during Weekday Peak Hours, Weekday Midday, and Weekend Peak Hours, except as shown in the traffic control plans. Provide a minimum of one lane in each direction of the freeway that is entirely clear for traffic during Night Time Hours except as allowed during full closure. Close system ramps only during Full Freeway Closure time periods, unless otherwise specified in the plan, or unless otherwise approved by the engineer for safety or operational reasons associated with other adjacent lane or freeway closures. Close service ramps only during Night Time Hours, unless otherwise specified in the plan, or unless otherwise approved by the engineer for safety or operational reasons associated with other adjacent lane or freeway closures

Follow plan details for closures. Lane restrictions of the freeway beyond that shown on the traffic control plans are subject to lane rental assessments and must be approved by the engineer. If plan details are not provided in the traffic control plan, furnish plans for

review by the engineer. Once approved, allow at least three business days prior to the closure of roadway, lane, and ramp as identified in Contractor Coordination.

Do not, at any time, conduct construction operations in the median area and adjacent outside shoulder area of the freeway at the same time without obtaining prior permission of the engineer, beyond that shown on the traffic control plans.

**Rolling Closure**

Short term freeway mainline rolling closures may be allowed for a maximum of 15 minutes for the removal and erection of sign structures, equipment moves across the road, or other required work as determined by the engineer. The department will allow short term rolling closures only between 2:00 AM and 4:00 AM, and they may only be performed by freeway law enforcement.

Obtain approval from the engineer before coordinating these closures with freeway law enforcement. Coordinate 14 calendar days in advance of closure. Present the scheduled time for the short term rolling closure at the weekly traffic meeting a minimum of one week prior to the closure.
SEF Rev. 14_1212

**Closure Restrictions**

**General**
Full closure and detouring of freeway roads will be restricted to Full Roadway Closure Hours unless otherwise specified. The freeway may be closed to facilitate the removal of structures and erection of girders, storm sewer trunk line crossings, to perform work related to major traffic shifts and other work approved by the engineer. Provide signed detour routes, as shown in the plans, fully open and free of construction during all full roadway and system ramp closures.

To minimize the total number of full roadway closures for girder erection and bridge demolition activities, the contractor is allowed extended full roadway closures between 10:00 PM and 5:00 AM Sunday through Thursday nights and between 11:00 PM and 7:00 AM for Friday and Saturday nights. A full roadway closure is defined as one direction of the freeway. Closing both directions of the freeway constitutes using two full roadway closures. A total of 120 extended full roadway closures are allowed. Bridge superstructure demolition activities will require a full roadway closure in both directions. Lane rental assessments will apply to these closures. These closures are to be utilized only for bridge demolition and girder erection activities for the following locations:

- Wisconsin Avenue reconstruction
- EN ramp reconstruction
- ES ramp reconstruction
- WS ramp reconstruction
- NE ramp demolition and reconstruction

- WN ramp demolition and reconstruction
- USH 45 southbound bridge over IH 94 eastbound demolition
- USH 45 southbound bridge over IH 94 westbound demolition

Do not begin the construction of R-40-540 prior to the lining of the existing 96" Storm Sewer from MH Z4142 to a point 700' to the east and MH Z4133 to a point 500' to the east or as approved by the engineer.

**Freeway Lane Restrictions**

Do not restrict traffic on eastbound IH 94 to two lanes, as shown in Stage 1, to construct Temporary Pavement EWG prior to March 4, 2016. This restriction shall not exceed 14 consecutive calendar days in duration and shall be contiguous with the subsequent eastbound IH 94 lane restriction shown in Stage 2 or as approved by the engineer.

Do not close any freeway lanes, as shown in Stage 2, except as described above on eastbound IH94, long-term prior to March 18, 2016, or as approved by the engineer.

Do not shift traffic on northbound IH 894, as shown in Stage 1A of project 1060-34-82, to construct IH 894 Auxiliary Lane prior to March 4, 2016. This traffic shift shall not exceed 42 consecutive calendar days in duration and shall be removed prior to the subsequent northbound IH 894 lane restriction shown in Stage 2 of project 1060-33-81 or as approved by the engineer

Do not close any freeway lanes on IH894/US45, as shown in Stage 2 of project 1060-33-81, prior to the completion of the IH 894 pavement, pavement marking, barrier wall, and signage work, shown in Stage 1B of project 1060-34-82, or as approved by the engineer

Northbound IH 894/USH 45 between the south end of the project and Schlinger Avenue may be reduced to two through lanes to facilitate the staged construction of Structure B-40-883 and roadway construction. This closure will only be allowed during Stages 2, 3 and 4 as shown in the plans, shall not take place prior to April 16, 2016 and shall be removed by November 22, 2016.

Eastbound IH 94 between the west end of the project and STH 100 may be reduced to two through lanes to facilitate the staged construction of Structures B-40-872 and B-40-874 and roadway construction. This closure will only be allowed during Stages 2, 3 and 4 as shown in the plans, shall not take place prior to March 18, 2016 and shall be removed by November 22, 2016.

Northbound USH 45 between Bluemound Road and Watertown Plank Road may be reduced to two through lanes to facilitate roadway construction between Station 346NS+00 and Station 354NS+00. This closure will be allowed only when the W-N Ramp is closed long term and shall not exceed 14 consecutive calendar days in duration.

**Long Term Closure Restrictions**
The existing US 45 southbound to IH 94 eastbound system ramp, ramp NE, may be closed as shown in the plans in Stage 3A for a onetime only period not to exceed 180 consecutive calendar days to facilitate construction of that ramp. Do not close this ramp prior to July 11, 2016 and open this ramp to traffic by June 27, 2017, or as approved by the engineer. Lane rental assessments will not apply to this 180 calendar day closure.

Do not close long term the existing Ramp WN prior to August 19, 2016, or as approved by the engineer.

**Service Ramp Closure Restrictions**
Do not close the IH 894/USH 45 northbound entrance ramp from Oklahoma Avenue for more than 28 consecutive calendar days to complete work only in IH 894 Auxiliary Lanes, project ID 1060-34-82.

Do not close the IH 894/USH 45 northbound exit ramp to National Avenue for more than 28 consecutive calendar days to complete work only in IH 894 Auxiliary Lanes, project ID 1060-34-82.

Do not close the IH 94 eastbound entrance ramp from 84th Street and the IH 94 eastbound entrance ramp from STH 100 at the same time.

Do not close the IH 894/USH 45 northbound entrance ramp from Greenfield Avenue and the IH 94 eastbound entrance ramp from STH 100 at the same time.

Do not close both the IH 94 eastbound entrance ramp from 84th Street and the USH 45 southbound exit ramp to Bluemound Road at the same time while the NE System Ramp is closed.

Do not close any lanes or restrict traffic on Bluemound Road from USH 45 to 84$^{th}$ Street and on 84$^{th}$ Street from Bluemound Road to IH 94 at the same time as the NE System Ramp is closed.

Do not close the IH 94 westbound exit ramp to S. 84th Street while the EN System Ramp is closed.

Do not close the eastbound IH 94 exit ramp to STH 100 while the WN System Ramp is closed.

Do not close the eastbound IH 94 exit ramp to STH 100 while IH 94 eastbound and the WS System Ramp are closed for the placement of structural steel.

Do not close the IH 94 eastbound entrance ramp from STH 100 while the NE System Ramp is closed.

Do not close the IH 94 westbound entrance ramp from STH 100 and the entrance ramp from National Avenue to northbound IH 894/USH 45 at the same time.

Do not close the entrance ramp from National Avenue and the entrance ramp from Lincoln Avenue to northbound IH 894/USH 45 in Stages 6, 7, and 8 at the same time.

Do not close the entrance ramp from National Avenue and the entrance ramp from Greenfield Avenue to southbound IH 894/USH 45 at the same time.

Do not close the southbound USH 45 exit ramp to Bluemound Road at the same time as southbound USH 45, south of Bluemound Road, is closed during the extended closures for steel erection.

All ramps at 84th Street shall be open to traffic during the Wisconsin State Fair, August 4, 2016 through August 14, 2016 and August 3, 2017 through August 13, 2017.

All ramps(those that are not already closed long-term per the staging plans) at Greenfield Avenue shall be open to traffic during the Wisconsin State Fair, August 4, 2016 through August 14, 2016, August 3, 2017 through August 13, 2017 and August 2, 2018 through August 12, 2018.

The northbound IH 894/USH 45 exit ramp to Greenfield Avenue may be closed only during the construction of the adjacent lanes on northbound IH 894/USH 45 as shown in the plans in Stage 2 for a onetime only period not to exceed 21 consecutive calendar days to facilitate construction of that ramp. This closure will not be allowed during the State Fair or when the IH 94 eastbound exit ramp to S. 84th Street is closed. Lane rental assessments will not apply to this 21 calendar day closure.

The IH 94 eastbound exit ramp to STH 100 may be closed only during the construction of the adjacent lanes on IH 94 eastbound as shown in the plans in Stage 2 for a onetime only period not to exceed 21 consecutive calendar days to facilitate construction of that ramp. This closure will not be allowed when the IH 94 eastbound exit ramp to S. 84th Street is closed. Lane rental assessments will not apply to this 21 calendar day closure.

The National Avenue entrance ramp to southbound IH 894/USH 45 may only be closed as shown in Stage 7 for a onetime only period not to exceed 21 consecutive calendar days to facilitate construction of the median of IH 894/USH 45. Do not close this ramp until traffic is restored on the Greenfield Avenue entrance ramp to southbound IH 894/USH 45. Lane rental assessments will not apply to this 21 calendar day closure.

**Restrictions for Steel Erection**

Ramp NE steel erection operations of Field Sections 4 and 5 over USH 45 southbound are allowed a onetime only continuous closure of USH 45 southbound within the weekend timeframe of 11:00 PM Friday night to 5:00 AM Monday morning. All system ramps (those that are not already closed long-term per the staging plans) shall be open to traffic during this closure. Lane rental assessments will apply to this closure. This closure shall be

completed prior to switching USH 45 northbound traffic to the new northbound pavement as shown in the plans is Stage 4A.

Ramp WS steel erection operations of Field Sections 5 and 6 operations adjacent to eastbound IH 94 and the W-S System Ramp are allowed a onetime only continuous closure of IH 94 eastbound at HWY100 and the W-S System Ramp within the weekend timeframe of 11:00 PM Friday night to 6:00 AM Sunday morning or 11:00 PM Saturday night to 5:00 AM Monday morning. Lane rental assessments will apply to this closure.

Ramp WN steel erection operations of Field Sections 9 and 10 operations over eastbound IH 94 and the W-S System Ramp are allowed a onetime only continuous closure of IH 94 eastbound at HWY100 and the W-S System Ramp within the weekend timeframe of 11:00 PM Friday night to 6:00 AM Sunday morning or 11:00 PM Saturday night to 5:00 AM Monday morning. Lane rental assessments will apply to this closure.

Ramp WN steel erection operations of Field Sections 17 and 18 operations over USH 45 are allowed a onetime only continuous closure of USH 45, both northbound and southbound, within the weekend timeframe of 11:00 PM Friday night to 6:00 AM Sunday morning or 11:00 PM Saturday night to 5:00 AM Monday morning. All system ramps(those that are not already closed long-term per the staging plans) shall be open to traffic during this closure. Lane rental assessments will apply to this closure. This closure shall be completed prior to switching IH 94 eastbound traffic to the new eastbound pavement as shown in the plans in Stage 5. This closure may be combined with the USH 45 closure for the Ramp ES steel erection operations of Field Sections 13 and 14.

Ramp ES steel erection operations of Field Sections 13 and 14 operations over USH 45 are allowed a onetime only continuous closure of USH 45, both northbound and southbound within the weekend timeframe of 11:00 PM Friday night to 6:00 AM Sunday morning or 11:00 PM Saturday night to 5:00 AM Monday morning. All system ramps(those that are not already closed long-term per the staging plans) shall be open to traffic during this closure. Lane rental assessments will apply to this closure. This closure shall be completed prior to switching IH 94 eastbound traffic to the new eastbound pavement as shown in the plans in Stage 5. This closure may be combined with the USH 45 southbound closure for the ramp WN steel erection operations of Field Sections 17 and 18.

Ramp WN steel erection operations of Field Sections 17 and 18 operations and ramp ES steel erection operations of Field Sections 13 and 14 operations over USH 45 may be combined into a onetime only continuous closure of USH 45, both northbound and southbound, within the weekend timeframe of 11:00 PM Friday night to 5:00 AM Monday morning. All system ramps (those that are not already closed long-term per the staging plans) shall be open to traffic during this closure. This closure shall be completed prior to switching IH 94 eastbound traffic to the new eastbound pavement as shown in the plans in Stage 5. Lane rental assessments will apply to this closure.

Ramp ES steel erection operations of Field Sections 5 and 6 operations over the W-S System Ramp are allowed a onetime only continuous closure of the W-S System Ramp within the weekend timeframe of 11:00 PM Friday night to 6:00 AM Sunday morning or 11:00 PM Saturday night to 5:00 AM Monday morning. Lane rental assessments will apply to this closure.

Do not begin or continue any work that closes traffic lanes or ramps outside the allowed time periods specified in this contract. If the contractor fails to open freeway lanes of traffic and/or ramps to traffic by the specified times, assessments shown in the Lane Rental Assessment Table in the article Lane Rental Assessment will be placed upon the contractor based on the hourly rental rate for the closure type and hourly definition that the non-compliant closure occurs. The total assessment to the contractor will be the summation of the separate assessments for each lane and each ramp closure violation.

Permitting the contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a waiver on the part of the department of any of its rights under the contract.

**Work Zone Ingress/Egress.**
All locations of work zone egress or ingress for construction vehicles are subject to approval from the engineer. Submit to the engineer locations for freeway access into and out of the work zone for each stage and plans, for approval, that include signage and parallel deceleration and acceleration lanes for each freeway access into and out of the work zones. Submit the locations and plans 14 calendar days prior to each stage for approval by the engineer. This will be an official submittal as defined in section 103.10.2.4 of the Contract Award and Execution located elsewhere in these Special Provisions.

At the weekly traffic meetings, provide updated information to the Work Zone Access Plan, as approved by the engineer, to direct emergency responders accessing a mainline median barrier restricted work zone. Access for emergency responders shall be maintained at all times and not restricted by vehicles, equipment or the storage of equipment, vehicles or materials.

Access into the work zones are not allowed directly from the freeway during peak hours. Access into the work zones from the freeway will be allowed at other times, subject to approval by the engineer, if operations can be safely accomplished and do not result in non-construction traffic entering the work zones. Exiting work zones directly onto the freeway are only allowed when operations do not obstruct or slow traffic on the freeway. All construction vehicles shall yield to all through traffic at all locations.
SEF Rev. 13_0425_revised

## Local Street Closure Restrictions

### Definitions

The following definitions apply to this contract for local street closure restrictions:

**Peak Hours**

- 6:00 AM – 9:00 AM Monday, Tuesday, Wednesday, Thursday, Friday
- 3:00 PM – 7:00 PM Monday, Tuesday, Wednesday, Thursday
- 3:00 PM – 9:00 PM Friday
- 11:00 AM – 8:00 PM Saturday
- 1:00 PM – 5:00 PM Sunday

**Off-Peak Hours**

- 9:00 AM – 3:00 PM Monday, Tuesday, Wednesday, Thursday, Friday
- 7:00 PM – 6:00 AM Monday, Tuesday, Wednesday, Thursday
- 9:00 PM – 11:00 AM Friday PM to Saturday AM
- 8:00 PM – 1:00 PM Saturday PM to Sunday PM
- 5:00 PM – 6:00 AM Sunday PM to Monday AM

### Closure Restrictions

Do not close local street traffic lanes or intersections and ensure that the local street traffic lanes are entirely clear for traffic during Peak Hours, except as shown in the traffic control plans. One local street traffic lane and/or the shoulder may be closed, but maintain at least one local street traffic lane open to traffic, during Off-Peak Hours. Close intersections only during Off-Peak Hours, unless otherwise specified in the plan, or unless otherwise approved by the engineer for safety or operational reasons associated with other adjacent local street closures.

Follow plan details for closures. Lane restrictions beyond that shown on the traffic control plans must be approved by the engineer. If plan details are not provided in the traffic control plan, furnish plans for review by the engineer for approval. Once approved, allow at least five business days prior to the closure of local roadway and/or intersection as identified in Contractor Coordination.

Do not, at any time, conduct construction operations in the median area and adjacent outside shoulder area of the local street at the same time without obtaining prior permission of the engineer, beyond that shown on the traffic control plans.

Do not begin or continue any work that closes local street traffic lanes or intersection outside the allowed time periods specified in this contract. If the contractor fails to open local roadway lanes of traffic and/or intersections to traffic by the specified times, assessments shown in the article Lane Rental Assessment will be placed upon the contractor based on the hourly rental rate that the non-compliant closure occurs. The total

assessment to the contractor will be the summation of the separate assessments for each local street traffic lane and local street intersection closure violation.

Permitting the contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a waiver on the part of the department of any of its rights under the contract.

**Bluemound Road**
Maintain access to the Milwaukee County Zoo from W. Bluemound Road at N. 99th Street at all times.

Maintain access from the Milwaukee County Zoo to W. Bluemound Road at N. 98th Street at all times.

Maintain access to and from the Zoofari Conference Center at N. 98th Street and W. Bluemound Road at all times. This access shall be separate from the Milwaukee County Zoo exit road.

**Wisconsin Avenue**
Wisconsin Avenue may be closed from west of 93rd Street through 95th Street, as shown in Stage 4 in the plans, for a onetime only period not to exceed 42 consecutive calendar days to facilitate construction of the concrete pavement between 93rd and 95th Street. This closure will only be allowed during the June 27, 2016 to August 21, 2016 timeframe. Lane rental assessments will not apply to this 42 calendar day closure.

Maintain access to and from the Milwaukee Regional Medical Center from Wisconsin Avenue at 94th Street at all times, except during the allowed closure listed above.

Maintain traffic at the intersections of 95th Street and 94th Street at all times, except during the allowed closure listed above.

Wisconsin Avenue may be restricted to one lane from west of 98th Street through 97th Street, as shown in Stages 2 and 3 in the plans, for a onetime only period not to exceed 60 consecutive calendar days to facilitate construction of the concrete pavement on 97th Street and on Wisconsin Avenue between 99th and 97th Street. This closure will only be allowed during the June 1, 2016 to August 31, 2016 timeframe. Lane rental assessments will not apply to this 60 calendar day restriction.

Maintain traffic at the intersection of 97th Street and to the residences along 97th Street at all times.

**84th Street**
Maintain access to and from the Pettit National Ice Center on S. 84th Street at all times.

Maintain access to the City of Milwaukee Fire Department's Fire station located in the southeast corner of S. 84th Street and W. Honey Creek Parkway at all times.

**S. Curtis Road**
Maintain one lane of traffic in each direction as shown in the Traffic Control- S. Curtis Roadway Closure Detail on S. Curtis Road at all times, or as approved by the engineer.

**Fairview Road**
Maintain one lane of traffic in one direction as shown in Stages 1 and 2 in the Traffic Control plans on Fairview Road at all times, or as approved by the engineer.

**100th Street**
Maintain access to the Milwaukee County Zoo Maintenance Facility from N. 100th Street at all times.

Maintain traffic for the west leg of the intersection of N. 100th Street and Schlinger Avenue at all times.

Maintain traffic to the residences along 100th Street at all times.

Do not remove the existing pavement and reconstruct the pavement of 100th Street north of Greenfield Avenue, as shown in stage 8 of the plans, prior to March 15, 2018 or as approved by the engineer.

**Oak Leaf/Deer Creek Bicycle Trails**
Maintain bicycle and pedestrian traffic for the Oak Leaf Trail and the Deer Creek Trail as shown in the Detour- Oak Leaf Trail and Deer Creek Trail plans on either the Oak Leaf Trail or the Deer Creek Trail at all times, or as approved by the engineer.

**General**
Provide Milwaukee County Transit System - Coordinator of Street Supervision, Melanie MacArthur, (414) 343-1764, with a schedule of any closures that effect any MCTS route and/or stop 14 calendar days prior to closure. Also coordinate the location of each Temporary Bus Stop Pad with Melanie MacArthur, 14 calendar days prior to installation.

Comply with all local ordinances that apply to local street work operations, including those pertaining to working during night time hours. Furnish any ordinance variance issued by the municipality or required permits to the engineer in writing 3 business days prior to performing such work.

Keep sidewalks open unless otherwise shown on the plans, or to facilitate the removal of structures and erection of girders or as approved by the engineer. Maintain pedestrian access to adjacent properties, businesses, schools, and at bus stops or provide where necessary, as directed by the engineer. Protect pedestrians from falling debris at all times when sidewalks are open.

Provide adequate temporary sidewalk and bridging between the curb and right-of-way line over freshly paved concrete or other obstructions in the sidewalk area, as directed by the engineer.

Construct temporary sidewalk surfaces with a minimum of 2 inches of temporary asphaltic surface, any grade of concrete, skid resistant steel plating, or alternative material as approved by the engineer and a minimum of 4-feet wide. Compact the surface of temporary asphaltic surface until smooth and capable of supporting a wheelchair. The separate payment for the construction of temporary sidewalks including materials, labor, removal and restoration, will be made by the department under the bid item Temporary Crosswalk/Sidewalk, unless otherwise shown on the plans.

Inform engineer, property owners and tenants at least 48 hours prior to removing a driveway approach that serves that property. Schedule sidewalk and driveway approach removal and replacement so that the time lapse between removal and replacement is minimal.

Do not close residential approaches or remove from service without giving sufficient notice to the occupants of the premises to remove their vehicles prior to driveway removal or closing of the driveway approach access. If necessary, make other access arrangements, agreed to in writing and signed by the contractor and the property owner serviced by the driveway. Obtain approval from the engineer prior to alternating construction sequencing.

Existing trees, street light poles, hydrants and other utility poles are to remain in place during construction unless otherwise noted in the plan. Conduct an on-site visit prior to bidding to determine any special measures required for proper clearance between the trees, hydrants and poles and the paving equipment. No additional compensation will be made.

**All Work Restrictions**

Excavation material and cleared and grubbed material should be stockpiled on upland areas an adequate distance away from wetlands, storm sewer inlets, floodplains, and the waterways as determined by engineer.

Provide the Wisconsin State Patrol, Milwaukee County Highway Maintenance, Waukesha County Highway Maintenance, the City of Milwaukee Police Department, the City of Wauwatosa Police Department, the City of West Allis Police Department, the Village of Hales Corners and Milwaukee County Sheriff's Department with a 24-hour emergency contact number for when maintenance is required.

**Interim and Final Completion of Work**

*Supplement standard spec 108.10 with the following:*

The department will not grant time extensions for the following:

- Severe weather as specified in standard spec 108.10.2.2.
- Labor disputes that are not industry wide.
- Delays in material deliveries.

Each day is defined as a 24 hour period beginning at 12:01 AM.
SEF Rev. 14_1211

Complete the retaining wall work for Minor Retaining Wall R-2 along the berm south of Greenfield Avenue prior to May 27, 2016.

Complete the landscaping work, including but limited to, tree planting, seeding and mulch, and sodding along the berm south of Greenfield Avenue prior to May 27, 2016.

Complete the landscaping work, including but limited to, tree planting, seeding and mulch, and sodding along Adler Street, Chester Street and O'Connell Street prior to May 27, 2016.

**Interim Completion of Work National Avenue Exit Ramp**
If the contractor fails to complete all work as shown in Stage 1B of Project ID # 1060-34-82 and coordination measures necessary on the northbound IH 894/USH 45 exit ramp to National Avenue to restore traffic on the ramp within 28 calendar days of the closure date, the department will assess the contractor $10,000 in interim liquidated damages for each calendar day that the ramp remains closed after 12:01 AM, on the 29th calendar day after the closure begins. An entire calendar day will be charged for any period of time within a calendar day that the ramp remains closed beyond 12:01 AM, on the 29th day, the exit ramp is not open.

**Interim Completion of Work Oklahoma Avenue Entrance Ramp**
If the contractor fails to complete all work as shown in Stage 1B of Project ID # 1060-34-82 and coordination measures necessary on the Oklahoma Avenue entrance ramp to northbound IH 894/USH 45 to restore traffic on the ramp within 28 calendar days of the closure date, the department will assess the contractor $10,000 in interim liquidated damages for each calendar day that the ramp remains closed after 12:01 AM, on the 29th calendar day after the closure begins. An entire calendar day will be charged for any period of time within a calendar day that the ramp remains closed beyond 12:01 AM, on the 29th day, the entrance ramp is not open.

**Interim Completion of Work 04/15/2016**
If the contractor fails to complete all of the work necessary to open the IH 894 auxiliary lane as shown in project ID 1060-34-82, Stage 2 of the traffic control plans including:

All work shown in stage 1B
IH 894 pavement, pavement marking, barrier wall, signage

prior to 12:01 AM on April 16, 2016, the department will assess the contractor $1,810 in interim liquidated damages per day for each calendar day after 12:01 AM on April 16, 2016. An entire calendar day will be charged for any period of time within a calendar day that the road remains closed beyond 12:01 AM on April 16, 2016.

**Interim Completion of Work 05/26/2016**
If the contractor fails to complete all of the work necessary to complete the sign structures and restoration as shown in project ID 1060-34-82, Stage 2 of the traffic control plans prior to 12:01 AM on May 27, 2016, the department will assess the contractor $1,810 in interim liquidated damages per day for each calendar day after 12:01 AM on May 27, 2016. An entire calendar day will be charged for any period of time within a calendar day that the road remains closed beyond 12:01 AM on May 27, 2016.

**Interim Completion of Work Wisconsin Avenue, 93rd Street to 95th Street**
If the contractor fails to complete all concrete paving, pavement marking, sidewalk and restoration work on Wisconsin Avenue between 93rd Street and 95th Street, as shown in Stage 4 to restore traffic on Wisconsin Avenue between 93rd Street and 95th Street within 42 calendar days of the closure date, the department will assess the contractor $5,000 in interim liquidated damages for each calendar day that the roadway remains closed after 12:01 AM, on the 43rd calendar day after the closure begins. An entire calendar day will be charged for any period of time within a calendar day that the roadway remains closed beyond 12:01 AM, on the 43rd day, the roadway is not open.

**Interim Completion of Work Wisconsin Avenue, 99th Street to 97th Street**
If the contractor fails to complete all concrete paving, pavement marking, signing, sidewalk and restoration work on Wisconsin Avenue between 99th Street and 97th Street and on 97th Street, as shown in Stages 2 and 3 of the plans, within 60 calendar days, the department will assess the contractor $1,810 in interim liquidated damages for each calendar day that the roadway is not complete after 12:01 AM, on the 61st calendar day. An entire calendar day will be charged for any period of time within a calendar day that the roadway is not complete beyond 12:01 AM, on the 61st day.

**Interim Completion of Work 11/22/2016**
If the contractor fails to complete all of the work necessary to open IH 894/USH 45 to 3 traffic lanes in each direction as shown in Stage 4 of the traffic control plans including:

- All work shown in stages 1, 2, and 3;
- IH 894/USH 45 northbound pavement, pavement marking, barrier wall, signage and lighting;
- Bridge B-40-883;
- Retaining walls R-40-532, R-40-534 and R-40-467;
- Noise walls N-40-66 and N-40-79;
- The northbound IH 894/USH 45 exit to Greenfield Avenue including pavement, pavement marking, barrier wall, signage and lighting;
- The Greenfield Avenue entrance ramp to northbound IH 894/USH 45 including pavement, pavement marking, barrier wall, signage and lighting.

prior to 12:01 AM on November 23, 2016, the department will assess the contractor $50,000 in interim liquidated damages per day for each calendar day after 12:01 AM on November 23, 2016. An entire calendar day will be charged for any period of time within a calendar day that the road remains restricted to two lanes beyond 12:01 AM on November 23, 2016.

**Interim Completion of Work 11/22/2016**
If the contractor fails to complete all of the work necessary to open IH 94 to 3 traffic lanes in each direction as shown in Stage 5 of the traffic control plans including:

- All work shown in stages 1, 2, 3 and 4
- IH 94 eastbound pavement, pavement marking, barrier wall, signage and lighting;
- Bridges B-40-870, B-40-872 and B-40-874
- Retaining walls R-40-540
- The eastbound IH 94 exit to STH 100 including pavement, pavement marking, barrier wall, signage and lighting;
- The STH 100 entrance ramp to eastbound IH 94 including pavement, pavement marking, barrier wall, signage and lighting;

prior to 12:01 AM on November 23, 2016, the department will assess the contractor $50,000 in interim liquidated damages per day for each calendar day after 12:01 AM on November 23, 2016. An entire calendar day will be charged for any period of time within a calendar day that the road remains restricted to two lanes beyond 12:01 AM on November 23, 2016.

**Interim Completion of Work 11/22/2016**
If the contractor fails to complete all of the work necessary to open Wisconsin Avenue to all traffic lanes in each direction including:

- Wisconsin Avenue Bridge, B-40-876 and retaining walls and approach pavements;
- Wisconsin Avenue pavement, pavement marking, sidewalks, signage and lighting;
- 97th Street pavement, pavement marking sidewalks and signing;
- Noise Wall N-40-62;

- The 95th Street traffic signal and all associated detection, signage, pedestrian heads, conduit, and lighting;
- The Wisconsin/94th Street intersection including all approaches, pavement marking, sidewalks, lighting, and signage;
- The Wisconsin/95th Street intersection including all approaches, pavement marking, sidewalks, lighting, and signage;
- The Wisconsin/97th Street intersection including all approaches, pavement marking, sidewalks, lighting, and signage;
- The Wisconsin/98th Street intersection including all approaches, pavement marking, sidewalks, lighting, and signage;
- Wisconsin Avenue work at and east of 94th Street including pavement marking sidewalks, lighting and signage;
- Wisconsin Avenue work at and west of 98th Street including pavement marking sidewalks, lighting and signage.

Prior to 12:01 AM on November 23, 2016, the department will assess the contractor $15,000 in interim liquidated damages per day for each calendar day after 12:01 AM on November 23, 2016. An entire calendar day will be charged for any period of time within a calendar day that the road remains closed beyond 12:01 AM on November 23, 2016.

**Interim Completion of Work northbound USH 45 Lane Reduction**
If the contractor fails to complete all work and coordination measures necessary on northbound USH 45 to restore traffic to 3 lanes within 14 calendar days of the closure date, the department will assess the contractor $50,000 in interim liquidated damages for each calendar day that the ramp remains closed after 12:01 AM, on the 15th calendar day after the closure begins. An entire calendar day will be charged for any period of time within a calendar day that the ramp remains closed beyond 12:01 AM, on the 15th day, the roadway is not open to three lanes.

**Interim Completion of Work Greenfield Avenue Exit Ramp**
If the contractor fails to complete all concrete paving as shown in Stage 2 and coordination measures necessary on the northbound IH 894/USH 45 exit ramp to Greenfield Avenue to restore traffic on the ramp within 21 calendar days of the closure date, the department will assess the contractor $10,000 in interim liquidated damages for each calendar day that the ramp remains closed after 12:01 AM, on the 22nd calendar day after the closure begins. An entire calendar day will be charged for any period of time within a calendar day that the ramp remains closed beyond 12:01 AM, on the 22nd day, the exit ramp is not open.

**Interim Completion of Work STH 100 Exit Ramp**
If the contractor fails to complete all concrete paving as shown in Stage 2 and coordination measures necessary on the eastbound IH 94 exit ramp to STH 100 to restore traffic on the ramp within 21 calendar days of the closure date, the department will assess the contractor $10,000 in interim liquidated damages for each calendar day that the ramp remains closed after 12:01 AM, on the 22nd calendar day after the closure begins. An entire calendar day will be charged for any period of time within a calendar day that the ramp remains closed beyond 12:01 AM, on the 22nd day, the exit ramp is not open.

**Interim Completion of Work 05/25/2017**
If the contractor fails to complete all of the work necessary to open Structure B-40-856 and the pavement for the system ramp W-N that carries traffic from eastbound IH 94 to northbound USH 45 prior to 12:01 AM on May 26, 2017, the department will assess the contractor $30,000 in interim liquidated damages per day for each calendar day after 12:01 AM on May 26, 2017, that the W-N Ramp is not open to vehicular traffic. An entire calendar day will be charged for any period of time within a calendar day that the ramp remains closed beyond 12:01 AM, on May 26, 2017.

**Interim Completion of Work 06/27/2017**
If the contractor fails to complete all of the work necessary to open Structure B-40-853 and the pavement for the system ramp N-E that carries traffic from southbound USH 45 to eastbound IH 94 prior to 12:01 AM on June 28, 2017, the department will assess the contractor $50,000 in interim liquidated damages per day for each calendar day after 12:01 AM on June 28, 2017, that the N-E Ramp is not open to vehicular traffic. An entire calendar day will be charged for any period of time within a calendar day that the ramp remains closed beyond 12:01 AM, on June 28, 2017.

See article Incentive/Disincentive for Interim Completion of Work for additional information.

**Interim Completion of Work 11/21/2017**
If the contractor fails to complete all concrete paving as shown in Stage 6 and coordination measures necessary on the STH 100 entrance ramp to westbound IH 94 to restore traffic on the ramp prior to 12:01 AM on November 22, 2017, the department will assess the contractor $10,000 in interim liquidated damages per day for each calendar day after 12:01 AM on November 22, 2017, that the STH 100 entrance ramp to westbound IH 94 is not open to vehicular traffic. An entire calendar day will be charged for any period of time within a calendar day that the ramp remains closed beyond 12:01 AM, on November 22, 2017.

**Interim Completion of Work 11/21/2017**
If the contractor fails to complete all of the work necessary to open Structure B-40-854 and the pavement for the system ramp E-S that carries traffic from westbound IH 94 to southbound IH 894/USH 45 prior to 12:01 AM on November 22, 2017, the department will assess the contractor $30,000 in interim liquidated damages per day for each calendar day after 12:01 AM on November 22, 2017, that the E-S Ramp is not open to vehicular traffic. An entire calendar day will be charged for any period of time within a calendar day that the ramp remains closed beyond 12:01 AM, on November 22, 2017.

**Interim Completion of Work National Avenue Entrance Ramp**
If the contractor fails to complete all concrete paving, shoulder and concrete barrier work, as shown in Stage 7 and coordination measures necessary on IH 894/USH 45 and the National Avenue entrance ramp to southbound IH 894/USH 45 to restore traffic on the ramp within 21 calendar days of the closure date, the department will assess the contractor

$10,000 in interim liquidated damages for each calendar day that the ramp remains closed after 12:01 AM, on the 22nd calendar day after the closure begins. An entire calendar day will be charged for any period of time within a calendar day that the ramp remains closed beyond 12:01 AM, on the 22nd day, the entrance ramp is not open.

**Interim Completion of Work 12/21/2017**
If the contractor fails to complete all work to get into Stage 8 traffic configuration, as shown in the plans, prior to 12:01 AM on December 22, 2017, the department will assess the contractor $25,000 in interim liquidated damages per calendar day, or portion thereof, for each calendar day after 12:01 AM on December 22, 2017, that the project is not into Stage 8 traffic configuration. An entire calendar day will be charged for any period of time within a calendar day that the project is not into Stage 8 traffic configuration beyond 12:01 AM December 22, 2017.

**Interim Completion of Work 08/29/2018**
If the contractor fails to complete all of the work necessary to open to full width and in final configuration all travelled roadway and shoulder lanes, all final pavement marking, signage, traffic control devices, and safety appurtenances by 12:01 AM on August 30, 2018, the department will assess the contractor $50,000 in liquidated damages per calendar day for each calendar day after 12:01 AM on August 30, 2018, that this work is not completed. An entire calendar day will be charged for any period of time within a calendar day that this work remains uncompleted beyond 12:01 AM, on August 30, 2018.

**Winter Maintenance**
Milwaukee County will perform snow removal operations for freeway and ramp lanes and shoulders that are open to traffic. The Cities of Milwaukee, Wauwatosa, and West Allis will perform snow removal operations for local streets that are open to traffic. Provide for snow removal in those areas closed to traffic as required to facilitate safe construction operations and stage changes and as required to eliminate snow melt run-off from crossing active roadways. Provide Milwaukee County Highway Maintenance and Milwaukee County Sheriff's Department with a 24-hour emergency contact number for when maintenance is required.
SEF Rev. 12_0330_revised

**Migratory Birds**
Swallow and other migratory birds' nests have been observed on or under the existing bridge. All active nests (when eggs or young are present) of migratory birds are protected under the federal Migratory Bird Treaty Act.

The nesting season for swallows and other birds is usually between May 1 and August 30. Either prevent active nests from becoming established, or apply for a depredation permit from the US Fish and Wildlife Service for work that may disturb or destroy active nests. The need for a permit may be avoided by removing the existing bridge structure prior to nest occupation by birds, or clearing nests from all structures before the nests become active in early spring. As a last resort, prevent birds from nesting by installing a suitable

netting device on the remaining structure prior to nesting activity. Include the cost for preventing nesting in the cost of Removing Old Structure.

## 5. Lane Rental Assessment.

### A General

This contract includes a lane rental charge procedure under which a rental charge is assessed for each freeway shoulder closure, each freeway lane closure, each service ramp closure, each system ramp closure, each full closure of a directional freeway roadway, each local street lane closure or each local street intersection closure from the time of notice to proceed until the project is complete. If a lane is obstructed at any time due to operations, it is considered a closure. The purpose of lane rental is to discourage unnecessary short term closures, especially during time periods outside night time hours.

### A.1 Freeway Lane Rental Assessment Table

The hourly rental rate will be assessed for each freeway shoulder closure, each freeway lane closure, each freeway service ramp closure, each freeway system ramp closure, and each full closure of a directional freeway roadway as follows:

| Freeway Lane Rental Assessment Table | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Freeway Closure Type | Peak Hours | | Weekday Midday and Weekend Peak Hours | | Weekday Off-Peak | | Weekend Off-Peak Hours | | Night Time Hours | |
| | Hourly Rental | Closure Hour Credits | Hourly Rental | Closure Hour Credits | Hourly Rental | Closure Hour Credits | Hourly Rental | Closure Hour Credits | Hourly Rental | Closure Hour Credits |
| Shoulder when at least 8 ft, shoulder is reduced to less than 8 ft. | $2,500 | 0 | $1,900 | 0 | $950 | 824 | $400 | 618 | $50 | 6823 |
| Single Lane when 2 or more lanes next to closure are open to traffic | $35,000 | 0 | $30,000 | 0 | $7,200 | 0 | $1,800 | 1235 | $200 | 8470 |

| Freeway Lane Rental Assessment Table | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Freeway Closure Type | Peak Hours | | Weekday Midday and Weekend Peak Hours | | Weekday Off-Peak | | Weekend Off-Peak Hours | | Night Time Hours | |
| | Hourly Rental | Closure Hour Credits | Hourly Rental | Closure Hour Credits | Hourly Rental | Closure Hour Credits | Hourly Rental | Closure Hour Credits | Hourly Rental | Closure Hour Credits |
| Single Lane when only 1 lane next to closure is open to traffic | $63,500 | 0 | $50,000 | 0 | $20,000 | 0 | $9,200 | 0 | $900 | 2706 |
| 2 lanes when 2 lanes next to closure are open to traffic | $40,000 | 0 | $25,000 | 0 | $13,400 | 0 | $6,900 | 0 | $700 | 5117 |
| 2 lanes when 1 lane next to closure is open to traffic | $63,500 | 0 | $35,600 | 0 | $17,800 | 0 | $9,200 | 0 | $900 | 1706 |
| Service Ramp | $2,000 | 0 | $1,700 | 72* | $1,500 | 0 | $1,000 | 48* | $700 | 6959 |
| System Ramp | $42,500 | 0 | $20,000 | 18* | $10,000 | 0 | $4,700 | 12* | $700 | 7708 |
| Full Roadway Closure (One Direction of the Freeway) | $120,000 | 0 | $80,000 | 72* | $40,000 | 0 | $28,000 | 48* | $1650 | 5977 |

*These hours will only be allowed to be used during the short term weekend closures for the erection of structural steel tubs and girders.

The monetary amount represents the average hourly cost of the interference and inconvenience to the road user for each closure and the cost to the department for closure implementation. Lane rental in excess of the maximum credited hours specified will be assessed. The assessment will be the total number of hours that each shoulder, lane, roadway, or ramp closure exceeds the "closure hour credits", multiplied by the "hourly rental" rate as defined in the Lane Rental Assessment Table.

The rental assessment will be 15-minute increments for closure time periods equal to or less than 60 minutes in length. All shoulder, lane, roadway, or ramp closure event durations will be rounded up or down to the nearest quarter hour for the purposes of this computation. Assessments will be administered via deductions made from the monies due to the contractor based on the hourly rental rate for the closure type and hourly definition that the non-compliant closure occurs. The deduction will be made based on the applicable rate for any and all closures whether work is being performed or not. The engineer, or designated representative, will be the sole authority in determining time period length for the lane rental charge.

Lane rentals will not be assessed for upstream service interchange ramp closures used to reduce vehicle demand heading into downstream roadway or ramp closures.

Lane rental will not be assessed for mainline closures noted in the plans under the title "Traffic Control/Construction Stage XX". Additional lane or ramp closures shown beyond those in the plans under the title "Traffic Control/Construction Stage XX" will be assessed if the closures exceed the credited hours.

Lane rental will not be assessed for ramp closures noted in the plans under the title "Traffic Control/Construction Stage XX" if the plans and construction operations already include such closures. Additional ramp closures shown beyond those in the plans under the title "Traffic Control/Construction Stage XX" will be assessed if the closures exceed the credited hours.

Lane rental for shoulder shall only apply to shoulders along the traveled way of the freeway. A shoulder is considered closed when a paved shoulder area with 8 feet or more of width is reduced to a dimension less than 8-feet wide by contractor’s equipment or traffic control devices, excluding spot locations of advance traffic control devices "in use" for other lane or ramp closures. Lane rental for shoulder shall not apply to shoulders along ramps or along closed traffic lane(s).

Lane rental will not be assessed for maintenance of temporary surfaces, if in the opinion of the engineer, maintenance of the damaged pavement was completed expeditiously, and the lack of maintenance would cause safety concerns to the traveling public.

Lane rental will not be assessed for closures due to crashes, accidents or emergencies.

**A1.1 Lane Rental Assessment and Liquidated Damages**

On those days when charged with the liquidated damage fee; and a shoulder, ramp or lane closure is in effect to facilitate construction operations that are exceeding credited hours; both the lane rental assessment and the liquidated damages fee will be charged.

**A.2 Local Street Lane Rental Assessment Rate**

The hourly rental rate will be assessed for each local street traffic lane or intersection as follows:

- Lane closure on local street outside of what is permitted in the prosecution and progress: $500 per quarter hour;
- Full Roadway or intersection closure of a local street intersection outside of what is permitted in the prosecution and progress: $1000 per quarter hour.

All local street lane or intersection closure event durations will be rounded up or down to the nearest quarter hour for the purposes of this computation. Deductions will be made from the monies based on the hourly rental rate for the closure type and the hourly duration that the non-compliant closure occurs. The deduction will be made for any and all non-compliant closures whether work is being performed or not. The engineer, or designated representative, will be the sole authority in determining the time period length of non-compliance for the lane rental charge.

Lane rental will not be assessed for maintenance of temporary surfaces, if in the opinion of the engineer, maintenance of the damaged pavement was completed expeditiously, and the lack of maintenance would cause safety concerns to the traveling public.

Lane rental will not be assessed for closures due to crashes, accidents or emergencies.

**A.2.1 Local Street Lane Rental Assessment and Liquidated Damages**
On those days when charged with the liquidated damage fee; and a local roadway lane or intersection closure is in effect to facilitate construction operations that are exceeding approved hours; both the lane rental assessment and the liquidated damages fee will be charged.

**B (Vacant)**

**C (Vacant)**

**D Measurement**
The department will assess Lane Rental Assessment by the dollar under the administrative item Failing to Open Road to Traffic. The charge will be the total sum of the total dollar amount of each freeway closure type category where the total number of hours that each shoulder, lane, ramp, or roadway closure exceeds the project maximum number of "closure hour credits," as defined in the Lane Rental Assessment Table, multiplied by the "hourly rental" as defined in the Lane Rental Assessment Table and the total dollar amount of the local street deductions based on the hourly rental rate for the closure type and the hourly duration of the non-compliant closures. The Lane Rental Assessment total will not be reduced or offset with freeway closure type categories where the total closure hours were less than "closure hour credits." Lane Rental Assessment will be in effect from the time of notice to proceed until such time that the project is complete.

**E (Vacant)**

## 6. Traffic.

**General**

Keep IH 894, IH 94, USH 45, all system ramps and all service ramps open to through traffic at all times for the duration of this project except as noted below and in the Prosecution and Progress article in these special provisions.

**Residential and Business Property Access**

Maintain access to properties along Wisconsin Avenue, N. 97th Street, N. 95th Street, W. Adler Street (and all adjacent side streets), W. Chester Street, Schlinger Avenue, S. 100th Street, Curtis Road, Fairview Avenue and any other local road effected by construction for local residents, businesses, and emergency vehicles. Maintain and keep open the access to all driveways and parking lots where alternative access is not available at all times by closing one driveway at a time, building half the driveway at a time and/or plating concrete work. Plating of concrete work, as directed by the engineer, is included in the item that is being plated. In parking lots that are being reconstructed, stage operations so that parking and access is maintained on existing or proposed base aggregate or pavement.

**Pedestrian Access**

Maintain sidewalk at all times except under direction of the engineer. Provide a temporary surface for pedestrian access at all times in areas of sidewalk construction. Construct the temporary surface to meet Americans with Disabilities Act Accessibility Guidelines (ADAAG) requirements consisting of temporary asphaltic surface, any grade of concrete, skid resistant steel plating, or alternative material as approved by the engineer. Gravel or base course material is not acceptable. Maintain sidewalk access to all businesses and residences at all times. The Temporary Crosswalk/Sidewalk bid item is payment for maintaining crosswalks and sidewalks through the construction zone.

Maintain pedestrian movements crossing the construction zone at all intersections at all times, unless otherwise directed by the engineer. Construct pedestrian crossings of intersections to meet the requirements of the ADAAG consisting of temporary asphaltic surface, any grade of concrete, skid resistant steel plating, or alternative material as approved by the engineer. Gravel or base course material is not acceptable. At all times, ADAAG accessible pedestrian walkways shall be maintained free from mud, sand, and construction debris. The Temporary Crosswalk/Sidewalk bid item is payment for maintaining crosswalks through the construction zone where existing crosswalks exist. Closures of sidewalk must be approved by the engineer and conform to signing shown on the traffic control plan. At locations where crosswalks crossing Wisconsin Avenue, S. 100th Street, 95th Street, 97th Street, Fairview Avenue, and Curtis Road exist on both sides of the intersection, closure of one of the two crosswalks is permitted as long as all other crossings are completely open. At intersections where only one crosswalk exists crossing Wisconsin Avenue, S. 100th Street, 95th Street, 97th Street, Fairview Avenue, and Curtis Road, stage work to maintain a crosswalk at all times.

**Schedule of Operations**
Traffic shifts shown in a given stage may occur at different times during that stage depending on the controlling elements for a given traffic movement as approved by the engineer. The department anticipates that the schedule of major traffic shifts and roadway openings and closings for each stage shall be as follows, unless approved by the engineer:

**PROJECT ID# 1060-33-81**
**Stage 1 Traffic:**

- Shift IH 894/USH 45 northbound traffic to outside between National Avenue and Greenfield Avenue.

- Shift IH 94 westbound traffic to median between Curtis Road and Hank Aaron State Trail.
- Close Schlinger Avenue.
- Southbound exit ramp to Greenfield Avenue is accessible from IH 94 eastbound only.
- Westbound exit ramp to STH 100 is accessible from USH 45 southbound only.
- Ramp ES is closed by others.
- USH 45 northbound exit ramp to Bluemound Road is closed by others.
- Wisconsin Avenue is closed by others.
- Hank Aaron State Trail is closed by others.
- Reduce IH 94 eastbound to two lanes at Elm Grove Road for the last two weeks of the stage.

**Stage 2 Traffic:**

- Reduce IH 894/USH 45 northbound traffic to two lanes between National Avenue and Greenfield Avenue and shift to the median.
- Shift USH 45 northbound traffic to the outside at Watertown Plank Road.
- Reduce IH 94 eastbound traffic to two lanes between Elm Grove Road and the Hank Aaron State Trail.
- Shift IH 94 eastbound traffic to temporary roadway EWG.
- Shift IH 94 westbound traffic to temporary roadway EWF.
- Close the IH 43 northbound entrance ramps from STH 100 (Hale Interchange).
- Close the IH 894/USH 45 northbound entrance ramp from National Avenue.
- Close the IH 894/USH 45 northbound entrance ramp from Lincoln Avenue.
- Close the IH 894/USH 45 northbound exit ramp to Greenfield Avenue (short term).
- Close the IH 894/USH 45 northbound entrance ramp from Greenfield Avenue.
- Close the IH 94 eastbound exit ramp to STH 100 (short term).

**Stage 3A Traffic:**

- Shift IH 894/USH 45 northbound traffic to outside between National Avenue and Greenfield Avenue (remains at two lanes).
- Shift IH 894/USH 45 northbound traffic to temporary roadway NSD between Greenfield Avenue and Schlinger Avenue.
- Shift USH 45 northbound traffic to the outside at Bluemound Road.

- Shift IH 894/USH 45 southbound traffic to the outside at Lincoln Avenue.
- Open the IH 894/USH 45 northbound entrance ramp from Greenfield Avenue.
- Close the system ramp from USH 45 southbound to IH 94 eastbound (Ramp NE).
- Shift IH 94 eastbound traffic to outside between Elm Grove Road and STH 100 (remains at two lanes).

**Stage 3B Traffic:**
- Close the system ramp from IH 94 eastbound to USH 45 northbound (Ramp WN)
- Reduce USH 45 northbound traffic to two lanes at Wisconsin Avenue and create an auxiliary lane from the system ramp from IH 94 westbound to US45 northbound (Ramp EN) to Watertown Plank Road (short term)
- Shift IH 894/USH 45 southbound traffic at Schlinger Avenue

**Stage 4A Traffic:**
- Restore IH 894/USH 45 northbound traffic between National Avenue and Greenfield Avenue to three lanes.
- Shift IH 894/USH 45 northbound traffic to new northbound roadway between Greenfield Avenue and Wisconsin Avenue.
- Restore USH 45 northbound traffic at Wisconsin Avenue to three lanes.
- Shift IH 94 eastbound traffic to temporary roadway EWP.
- Shift system ramp from IH 94 eastbound to IH 894/USH45 southbound (Ramp WS) traffic to new Ramp WS roadway.
- Open the IH 43 northbound entrance ramps from STH 100 (Hale Interchange).
- Open the IH 894/USH 45 northbound entrance ramp from National Avenue.
- Open the IH 894/USH 45 northbound entrance ramp from Lincoln Avenue.
- Northbound entrance ramp from Greenfield Avenue restricted to IH 94 eastbound only.

**Stage 4B Traffic:**
- Shift system Ramp EN traffic.
- Shift service Ramp WJ traffic.

**Stage 5 Traffic:**
- Open system Ramp NE.
- Restore IH 94 eastbound traffic between Elm Grove Road and STH 100 to three lanes.
- Shift IH 94 eastbound traffic to new eastbound roadway between STH 100 and 84$^{th}$ Street.
- Open the USH 45 northbound entrance from Bluemound Road.
- Close eastbound entrance ramp from STH 100 to IH 94 eastbound.
- Eastbound exit ramp to 84$^{th}$ Street is accessible from IH 894/USH 45 northbound only.
- Open Wisconsin Avenue.

**Stage 6A Traffic:**

- Open system Ramp WN.
- Shift IH 894/USH 45 southbound traffic to northbound roadway between Lincoln Avenue and Schlinger Avenue.
- Shift IH 94 westbound traffic to eastbound roadway between Underwood Parkway and the Interchange Core.
- Shift system Ramp EN traffic to Temporary Roadway ENA.
- Open STH 100 eastbound entrance ramp to IH 94 eastbound.
- Open STH 100 eastbound entrance ramp to USH 45 northbound.
- Close the IH 894/USH 45 northbound entrance ramp from Lincoln Avenue.
- Close the IH 894/USH 45 southbound exit ramp to Lincoln Avenue.
- Close the IH 894/USH 45 southbound entrance ramp from Greenfield Avenue.
- Close the IH 894/USH 45 southbound exit ramp to Greenfield Avenue.
- Close the IH 94 westbound entrance ramp from STH 100.
- Close the IH 94 westbound exit ramp to STH 100.
- Westbound entrance ramp from 84$^{th}$ Street restricted to USH 45 northbound only.

**Stage 6B Traffic:**

- Shift Ramp WS traffic at Greenfield Avenue.
- Shift Ramp NW/SW traffic at STH 100.

**Stage 7 Traffic:**

- Shift IH 894/USH 45 southbound traffic to new southbound roadway between National Avenue and Bluemound Road.
- Shift IH 94 westbound traffic to new westbound roadway between Elm Grove Road and 84$^{th}$ Street.
- Shift Ramp EN traffic to new Ramp EN roadway.
- Close the IH 894/USH 45 northbound entrance ramp from National Avenue.
- Close the IH 894/USH 45 southbound entrance ramp from National Avenue.
- Open the IH 894/USH 45 northbound entrance ramp from Lincoln Avenue.
- Open the IH 894/USH 45 southbound entrance ramp from Greenfield Avenue.
- Open the USH 45 southbound entrance from Bluemound Road.
- Open the IH 94 westbound entrance ramp from STH 100.
- Open the IH 94 westbound exit ramp to STH 100.
- Reduce Curtis Road to one lane in each direction.

**Stage 8 Traffic:**

- Shift IH 894/USH 45 northbound traffic to southbound roadway between Greenfield Avenue and Bluemound Road.
- Open Ramp ES.
- Shift Ramp SE traffic to new Ramp SE roadway.
- Open the IH 894/USH 45 northbound entrance ramp from National Avenue.
- Close the IH 894/USH 45 northbound entrance ramp from Greenfield Avenue.
- Open the IH 894/USH 45 southbound entrance ramp from National Avenue.

**Stage 9 Traffic:**

- Shift IH894/USH 45 northbound traffic to new northbound roadway between Greenfield Avenue and Bluemound Road.
- Open the IH 894/USH 45 southbound exit ramp to Lincoln Avenue.
- Open the IH 894/USH 45 northbound entrance ramp from Greenfield Avenue.
- Open the USH 45 northbound exit ramp to Bluemound Road.
- Open Schlinger Avenue.
- Open Hank Aaron State Trail.

**PROJECT ID# 1060-34-82**

**Stage 1A Traffic:**

- Shift IH 894/USH 45 northbound traffic to inside between Oklahoma Avenue and National Avenue (remains 3 lanes)
- Keep All Oklahoma Avenue and National Avenue ramps open

**Stage 1B Traffic:**

- Shift IH 894/USH 45 northbound traffic to inside between Oklahoma Avenue and National Avenue (remains 3 lanes)
- Close IH 894/USH 45 northbound entrance ramp from Oklahoma Avenue
- Close IH 894/USH 45 northbound exit ramp to National Avenue

**Stage 2 Traffic:**

- Shift IH 894/USH 45 northbound traffic to ultimate location between Oklahoma Avenue and National Avenue
- Open IH 894/USH 45 northbound entrance ramp from Oklahoma Avenue
- Open IH 894/USH 45 northbound exit ramp to National Avenue

## 7. Holiday and Special Event Work Restrictions.

**Holiday Restrictions**

Do not perform work on, nor haul materials of any kind along or across any portion of the highway Right of Way of USH 45, IH 94, IH 894, and entirely clear the traveled way and shoulders of such portions of the highway of equipment, barricades, signs, lights, and any other material that might impede the free flow of traffic during the following holiday periods:

- From noon Wednesday, November 25, 2015 to 6:00 AM Monday, November 30, 2015 for Thanksgiving;
- From noon Wednesday, December 23, 2015 to 6:00 AM Saturday, December 26, 2015 for Christmas;
- From noon Thursday, December 31, 2015 to 6:00 AM Saturday, January 2, 2016 for New Years;

- From noon Friday, May 27, 2016 to 6:00 AM Tuesday, May 31, 2016 for Memorial Day;
- From noon Friday, July 1, 2016 to 6:00 AM Tuesday, July 5, 2016 for Independence Day;
- From noon Friday, September 2, 2016 to 6:00 AM Tuesday, September 6, 2016 for Labor Day;
- From noon Wednesday, November 23, 2016 to 6:00 AM Monday, November 28, 2016 for Thanksgiving;
- From noon Friday, December 23, 2016 to 6:00 AM Tuesday, December 27, 2016 for Christmas;
- From noon Saturday, December 31, 2016 to 6:00 AM Monday, January 2, 2017 for New Years';
- From noon Friday, May 26, 2017 to 6:00 AM Tuesday, May 30, 2017 for Memorial Day;
- From noon Monday, July 3, 2017 to 6:00 AM Wednesday, July 5, 2017 for Independence Day;
- From noon Friday, September 1, 2017 to 6:00 AM Tuesday, September 5, 2017 for Labor Day;
- From noon Wednesday, November 22, 2017 to 6:00 AM Monday, November 27, 2017 for Thanksgiving;
- From noon Friday, December 22, 2017 to 6:00 AM Tuesday, December 26, 2017 for Christmas.
- From noon Friday, December 29, 2017 to 6:00 AM Tuesday, January 2, 2018 for New Years;
- From noon Friday, May 25, 2018 to 6:00 AM Tuesday, May 29, 2018 for Memorial Day
- From noon Tuesday, July 3, 2018 to 6:00 AM Thursday, July 5, 2018 for Independence Day.

Provide any proposals to work within the work zone(s) adjacent to the highway carrying USH 45, IH 94, and IH 894 traffic during the established holiday periods to the engineer for approval. Proposals will include a plan that establishes work type, hours of operations, and will certify no ingress/egress to the site by construction or worker vehicles from USH 45, IH 94, and IH 894 consistent with the above restrictions for equipment, barricades, signs, lights, and any other material that might impede the free flow of traffic as noted above.

Holiday work restrictions do not apply to roadways or ramps already closed long term during construction as shown on the plans. New long term closures of ramps and roadways must be coordinated with the holiday work restrictions.

Special event work restrictions do not apply to roadways or ramps already closed long term during construction as shown on the plans. New long term closures of ramps and roadways must be coordinated with the special event work restrictions.

**Freeway Special Event Restrictions**

During Summer Fest, scheduled for June 29 through July 10, 2016, June 28-July 9, 2017 and June 27-July 8, 2018, keep open the following roadways until one hour after the event closes each night:

- System ramps (those that are not already closed long-term per the staging plans).
- Service interchange ramps at the Watertown Plank, 84th Street, and 68th/70th Street service interchanges (those that are not already closed long-term per the staging plans).
- Maintain two open lanes on IH 94 WEST, one open lane on IH 94 EAST, and one open lane on USH 45, north of I-94, in both directions.

During Wisconsin State Fair, scheduled for August 4-14, 2016, August 3-13, 2017 and August 2-12, 2018, keep open the following roadways until one hour after the event closes each night:

- System ramps (those that are not already closed long-term per the staging plans).
- Service interchange ramps (those that are not already closed long-term per the staging plans).
- Maintain two open lanes on IH 94 and USH 45 in both directions.

On days with a Milwaukee Brewer home game at Miller Park, maintain two outbound lanes on westbound IH 94 from Miller Park up until four hours after the start of the game. IH94 restrictions during other special events at Miller Park will be determined on an as needed basis.

During the U.S Open, scheduled for June 15-18, 2017, no daytime or extended weekend closures will be allowed.

**Local Road Special Event Restrictions**
Work will be restricted on these local roads during these special events.

- On Bluemound Road, between HWY 100 and 95th Street, no work allowed during the Milwaukee County Zoo's A la Carte event, August 18-21, 2016, August 17-20, 2017 and August 16-19, 2018.
- On Bluemound Road, between HWY 100 and 95th Street, no work allowed on Family Free Days at the Milwaukee County Zoo, dates as follows:

| **2015** | **2016** | **2017** | **2018** |
|---|---|---|---|
| November 7 | January 2 | January 7 | January 6 |
| December 5 | February 6 | February 4 | February 3 |
| | March 5 | March 4 | March 3 |
| | November 5 | November 4 | |
| | December 3 | December 2 | |

.

- On 84th Street between Bluemound Road and Greenfield Avenue and Kearney between 84th Street and 70th Street, no work allowed on days with the Wisconsin State Fair festival at State Fair Park, August 4-14, 2016, August 3-13, 2017 and August 2-12, 2018,.

These restrictions also apply to hauling of materials and equipment.

## 8. Utilities.

This contract comes under the provisions of Administrative Rule TRANS 220.

Additional information regarding recently relocated utility facilities may be available on permits issued to the utility companies. These permits can be viewed at the Region Office during normal working hours. Contact WisDOT SE Freeways Utility Coordinator Douglas Gendron at (414) 750-4362 for further information.

Underground and overhead utility facilities are located within the project limits. Utility adjustments are required for this construction project as noted below. Coordinate construction activities with a call to Diggers Hotline or a direct call to the utilities that have facilities in the area as required per state statute. Use caution to ensure the integrity of underground facilities and maintain code clearances from overhead facilities at all times.

Some utility work, as described below, is dependent on prior work being performed by the contractor at a specific site. Provide the engineer and the affected utility a good faith notice of when the utility is to start work at the site. Notice shall be given 14 to 16 calendar days in advance of when the site will be available to the utility. Follow up with a confirmation notice to the engineer and the utility not less than 3 working days before the site will be ready for the utility to begin its work.

Contact utility companies listed in the plans prior to preparing bids to obtain current information on existing utility locations and the status of any new utility relocation work.

Utility companies will be performing utility work and adjustments within the limits and during the life of the project. The contractor shall cooperate and coordinate construction activities with these companies.

There may be abandoned utility facilities within the project limits. If a conflict with an abandoned utility facility is encountered, contact the appropriate utility owner/representative to coordinate construction activities and proper removal and disposal of said facility as necessary.

Utility working days shown herein are as defined in Wisconsin Administrative Code Chapter Trans 220.

Known utilities in the projects are as follows:

**1060-33-81**

**AT&T Corporation** has existing underground communications facilities within the project limits in the following locations:

- An underground communications duct package beginning beyond the project limits at a point in the We Energies 96th Street Substation located at Station 802FH+47, 292'LT and running southwesterly, crossing IH 94 at Station 198EW+05, and continuing southwesterly to a point on the easterly right of way of USH 45/ IH 894 at Station 592SE+77, 247'RT. From there the line continues southwesterly to Station 587SE+49, 290'RT where it turns and runs westerly along the north side of the Hank Aaron State Trail, crossing USH 45/ IH 894 at Station 286NS+10, and continuing westerly. From there the line continues westerly and northwesterly along the north side of the Hank Aaron State Trail to Station 565WS+78, 256'RT where it turns and runs westerly across the trail to Station 560WS+62, 317'RT. From there the line runs northwesterly along the south side of the Hank Aaron State Trail to Station 130EW+35, 108'RT where it turns and runs westerly along the north side of Fairview Avenue to Station 121EW+70, 96'RT. From there it turns and runs southwesterly along the north side of Fairview Avenue, crossing S. Curtis Road at Station 11CT+35, and continuing southwesterly along the southerly right of way of IH 94 to Station 95EW+71, 140'RT where it turns and runs northerly, crossing IH 94 at Station 95EW+71, and continues northerly to Station 95EW+71, 148'LT. From there it turns and runs westerly along the northerly right of way of IH 94 to beyond the westerly project limits. This line will remain in place without adjustment.
- An underground communications duct package beginning beyond the easterly project limits and running westerly along the north side of the Hank Aaron State Trail to Station 184HA+13, 33'LT where it turns and runs southwesterly to a handhole at Station 784GE+60, 135'RT. From there the line turns and runs southerly along the east right of way of USH 45/ IH 894, crossing Schlinger Avenue at Station 531SCH+64, and continuing southerly to Station 768GE+07, 56'RT. From there the line turns and runs southwesterly to Station 767GE+57, 76'LT where it turns and runs southerly along the existing easterly fence line of USH 45/ IH 894, crossing Greenfield Avenue at Station 519G+21, and continues southerly to Station 749GB+86, 30'RT. From there it turns and runs easterly to the easterly right of way of USH 45/ IH 894 where it turns and runs southerly, southwesterly and southerly along the easterly right of way of USH 45/ IH 894 to Station 705LA+10, 38'RT. From there it turns and runs southwesterly, crossing the northbound on-ramp from Lincoln Avenue at Station 704LA+98, and continuing southwesterly to Station 704LA+70, 86'LT. From there it turns and runs southwesterly, crossing Lincoln Avenue at Station 48L+20, and continues southerly along the east fence of USH 45/ IH 894 to beyond the southerly project limits. AT&T Corporation will abandon this line between Station 768GE+07, 56'RT and Station 758GA+62, 35'RT, between Station 749GB+86, 30'RT and

Station 737GB+79, 30'RT, and between Station 717LA+09, 46'RT and Station 704LA+74, 81'LT prior to construction. AT&T Corporation will also lower this line at Station 720LA+49, 53' RT prior to construction. The remaining portions of this line will remain in place without adjustment.

AT&T Corporation will relocate, construct and reconstruct communication facilities in the project area at the following locations prior to construction:

- A new underground communications duct package beginning at Station 768GE+07, 56'RT and running southerly along the east right of way of USH 45/ IH 894 to Station 758GA+62, 35'RT.
- A new underground communications duct package beginning at Station 749GB+86, 30'RT and running southerly along the east side of northbound off-ramp to Greenfield Avenue to Station 744GB+00, 26'RT. From there the duct package continues southerly along the easterly right of way of USH 45/ IH 894 to Station 737GB+79, 30'RT.
- A new underground communications duct package beginning at Station 717LA+09, 46'RT and running southerly to Station 712LA+19, 27'LT where it turns and continues southerly to Station 708LA+83, 44'LT where it turns and continues southerly to Station 704LA+74, 81'LT.

AT&T Corporation also has abandoned duct packages within the project limits in the following locations:

- An abandoned underground communications duct package beginning beyond the easterly project limits and running westerly along the northerly fence line of IH 94 to Station 525EN+61, 158'RT. From there it continues westerly through the interchange, crossing USH 45 at Station 299NS+93, and continues westerly to Station 490NW+08, 62'RT. From there it turns and runs southwesterly along the south side of the NW Ramp to Station 480NW+26, 52'RT where it turns and runs westerly along the north side of IH 94 to Station 558SA+91, 19'LT. From there it turns and runs northwesterly to Station 577SS+85, 101'RT where it turns and runs westerly, crossing STH 100 at Station 577SS+85, and continues westerly along the north fence of IH 94 to Station 95EW+70, 148'LT. Portions of this line may have been previously removed during the Zoo IC Phase 1 project.
- An abandoned underground communications duct package beginning beyond the easterly project limits and running westerly along the southerly fence line of IH 94 to Station 800FC+00, 0'LT where it turns and runs southwesterly along the east right of way of USH 45/ IH 894 to Station 600SW+00, 11'RT where it turns and runs southerly to Station 767GE+57, 76'LT. Portions of this line may have been previously removed as part of the Zoo IC Phase 1 project.
- An abandoned underground communications duct package beginning at Station 768GE+07, 56'RT and running southwesterly to Station 767GE+57, 76'LT.
- An abandoned underground communications duct package beginning at a handhole at Station 530SCH+34, 24'LT and running westerly along the north side of

Schlinger Avenue to beyond the westerly project limits. Portions of this line may have been previously removed as part of the Zoo IC Phase 1 project.

Contact Ken Nine (574-904-6336 cell) of JMC Engineers & Associates, Inc. 7 days in advance to coordinate locations and any excavation near their facilities.

**AT&T Wisconsin** has underground and overhead communication facilities within the project limits in the following locations:

- An underground communications line beginning beyond the westerly project limits near Lincoln Avenue and running easterly, crossing USH 45/ IH 894 on the Lincoln Avenue Bridge at Station 202NS+81, and continuing easterly to beyond the project limits. This line will remain in place without adjustment.
- An underground communications line beginning beyond the westerly project limits near the southbound USH 45/ IH 894 off-ramp to Lincoln Avenue and running easterly to Station 706LD+21, 45'LT where it turns and runs northeasterly along the west right of way of USH 45/ IH 894 to Station 221NS+54, 158'LT. From there it turns and runs westerly to beyond the westerly project limits. This line will remain in place without adjustment.
- An underground communications line beginning beyond the westerly project limits near W. Orchard Street and running easterly, crossing USH 45/ IH 894 at Station 248NS+50, and continuing easterly to a manhole at Station 748GB+78, 56'RT. From there it turns and runs northeasterly to a manhole in Greenfield Avenue at Station 520G+97, 15'LT. This line will remain in place without adjustment.
- An overhead communications line beginning at a pole at Station 757GA+52, 49'RT and running northerly on We Energies poles along the easterly right-of-way of IH 894 / USH 45 to a pole at Station 779GE+08, 66'RT. This line will remain in place without adjustment.
- An underground communications line beginning at a manhole in Greenfield Avenue at Station 514G+78, 15'LT and running northerly along the west side of the southbound USH 45/ IH 894 off-ramp to Greenfield Avenue to a manhole at Station 13TD+18, 14'RT where it turns and runs southwesterly along the south side of W. Madison Place to beyond the westerly project limits. This line will remain in place without adjustment.
- An underground communications line beginning beyond the southerly project limits and running northerly along the southbound lanes of S. Curtis Road to beyond the northerly project limits. This line will remain in place without adjustment.
- An underground communications line beginning beyond the southerly project limits and running northerly, crossing IH 94 at Station 153EW+57, approximately 193' west of the centerline of STH 100, and continuing northerly to beyond the project limits. This line will remain in place without adjustment.
- An underground communications line beginning at a manhole in Bluemound Road at Station 194BL+79, 17'LT and running northerly along the center of N. 97th Street to a manhole at Station 40TF+30, 1'RT. From there it turns and runs easterly, crossing USH 45 at Station 325NS+20, and continues easterly to a

manhole located at Station 41TRN+54, 18'RT. From there it turns and runs southerly along the center of N. 95th Street to a manhole in Bluemound Road at Station 202BL+86, 20'LT. This line will remain in place without adjustment.

- An underground communications line beginning beyond the westerly project limits near Wisconsin Avenue and running easterly in the westbound lanes of Wisconsin Avenue to a manhole at Station 25WX+26, 34'LT where it turns and runs southerly along the east side of N. 97th Street to a manhole at Station 47TF+08, 34'RT. From there it turns and runs easterly, crossing USH 45 at Station 331NS+54, to a manhole located at Station 47TRN+18, 18'RT where it turns and runs northerly in N. 95th Street to a manhole in Wisconsin Avenue at Station 32WX+56, 34'LT. From there it turns and runs easterly along the north edge of Wisconsin Avenue to beyond the easterly project limits. This line will remain in place without adjustment.
- An underground communications line beginning beyond the westerly project limits and running easterly along the north right of way of Wisconsin Avenue to Station 24WX+77, 91'LT where it turns and runs northerly along the westerly right of way of USH 45 to beyond the northerly project limits. This line will remain in place without adjustment.
- An underground communications line beginning beyond the easterly project limits near Burleigh Street and running westerly along the median of Burleigh Street to beyond the westerly project limits. This line will remain in place without adjustment.

AT&T Wisconsin also has abandoned facilities within the project limits in the following locations:

- An underground line beginning at a manhole in S. 100th Street at Station 13TD+18, 14'RT and running northerly along the westerly fence of USH 45/ IH 894, crossing Schlinger Avenue at Station 526SCH+80, and continuing northerly to Station 39TD+64, 38'RT. From there it turns and runs westerly, crossing S. 100th Street at Station 39TD+59, and continues westerly to beyond the project limits.
- An underground line beginning at a manhole in Wisconsin Avenue at Station 25WX+26, 34'LT and running easterly in the westbound lanes of Wisconsin Avenue to a manhole at Station 26WX+82, 33'LT.
- An underground line beginning at a manhole in Wisconsin Avenue at Station 32WX+57, 33'LT and running westerly in the westbound lanes of Wisconsin Avenue to Station 31WX+26, 33'LT.

AT&T Wisconsin will also adjust manholes throughout the project limits during construction. Contact Jay Bulanek (262-896-7669 office) of AT&T Wisconsin 3 days prior to any paving operations to coordinate manhole adjustments.

Contact Jay Bulanek (262-896-7669 office) of AT&T Wisconsin 7 days in advance to coordinate locations and any excavation near their facilities.

**American Transmission Company (ATC)** has overhead 138kV electric transmission lines within the project limits in the following locations:

- Three overhead 138kV electric transmission circuits beginning at the Bluemound Substation east of S. 116th Street and running northwesterly, crossing IH 94 between Station 125EW+25 and Station 126EW+85, and continuing northwesterly to beyond the project limits. These lines will remain in place without adjustment.
- Six overhead 138kV electric transmission circuits beginning at the Bluemound Substation east of S. 116th Street and running northeasterly to approximately 543SC+23, 45'RT where they turn and run southeasterly along the south side of IH 94 to approximately Station 169EW+78, 288'RT. From there they turn and run northeasterly, crossing IH 94 between Station 171EW+35 and Station 174EW+78, and continue northeasterly on the south side of the Milwaukee County Zoo, crossing USH 45 between Station 299NS+50 and Station 302NS+08, and continue northeasterly to the 96th Street Substation in the northeast quadrant of the Zoo Interchange. These lines will remain in place without adjustment.
- Two overhead 138kV electric transmission circuits beginning at the 96th Street Substation in the northeast quadrant of the Zoo Interchange and running southwesterly, crossing IH 94 between Station 196EW+62 and Station 198EW+68, to approximately Station 277NS+33, 179'RT. From there the lines run southerly along the east side of USH 45/ IH 894 to beyond the southerly project limits. These lines will remain in place without adjustment.
- Two overhead 138kV electric transmission circuits beginning at the West Junction Substation east of USH 45/ IH 894 at the Union Pacific Railroad and running westerly, crossing USH 45/ IH 894, and continuing westerly to beyond the project limits. These lines will remain in place without adjustment.
- An overhead 138kV electric transmission circuit consisting of temporary and permanent pole locations between the 96th Street Substation and Watertown Plank Road. The temporary poles are located at:
  - Station 334NS+04, 256'RT
  - Station 337NS+04, 397'RT
  - Station 340NS+44, 330'RT
  - Station 343NS+87, 231'RT

  The overhead 138kV circuit begins at the 96th Street Substation in the northeast quadrant of the Zoo Interchange and runs northwesterly to a pole at Station 811BB+79, 28'LT where it turns and runs northerly along the east side of USH 45 to a pole at Station 330NS+22, 173'RT. From there it turns and runs northeasterly, crossing Wisconsin Avenue at Station 31WX+34, and continues northeasterly to a pole at Station 337NS+04, 397'RT where it turns and runs northwesterly along the east right of way of USH 45 to a pole at Station 347NS+13, 162'RT. From there the line continues northwesterly to beyond the project limits. ATC will replace the temporary poles with permanent poles in the following locations during construction:
  - Station 334NS+00, 159'RT
  - Station 337NS+32, 132'RT
  - Station 340NS+60, 137'RT
  - Station 343NS+87, 138'RT

  ATC will also reinstall overhead conductors between the existing permanent pole at Station 330NS+22, 173'RT and the existing permanent pole at Station 347NS+13, 162'RT during construction. ATC will remove the temporary poles upon completion of the relocation during construction. All other existing poles and

lines will remain in place without adjustment. ATC will utilize the adjacent area of new northbound roadway/off-ramp/shoulder closure occurring between Stage 5 and Stage 7 to construct the permanent poles and reconfigure this circuit. ATC will require an outage of this circuit to do their work.

ATC will provide outages of the overhead 138kV electric transmission circuit during the construction of Retaining Wall R-40-516. The outages will consist of a maximum of 2 outages totaling a maximum of 16 days. Coordinate all outages of the overhead 138kV transmission circuit with ATC. Contact Ivan Keller (262-422-0326) of American Transmission Company a minimum of 90 days prior to requiring outage of this overhead 138kV transmission circuit.

Coordinate construction activities with ATC. Due to outage constraints for the multi-state electric grid, these transmission lines cannot be de-energized during construction except as noted above. Use caution when operating overhead equipment in this area and maintain OSHA safe working clearance to the overhead conductors at all times. Notify ATC 48 hours before beginning any work within or around overhead electric transmission lines other than as previously noted.

ATC also has abandoned underground electric lines within the project limits in the following locations:

- An abandoned underground 138kV electric transmission line beginning at the Bluemound Substation east of S. 116th Street and running northeasterly, crossing the Hank Aaron State Trail at Station 130HA+65, and continuing northeasterly to Station 143EW+44, 165'RT. From there it turns and runs southeasterly, crossing STH 100 at Station 568SN+81, and continues southeasterly to Station 169EW+62, 103'RT. From there it turns and runs northeasterly, crossing IH 94 in a We Energies tunnel at Station 171EW+15, and continues northeasterly, crossing USH 45 in a We Energies tunnel at Station 301NS+65. From there it continues northeasterly to the 96th Street Substation in the northeast quadrant of the Zoo Interchange.
- An underground 138kV electric transmission line beginning at the Bluemound Substation east of S. 116th Street and running northeasterly, crossing the Hank Aaron State Trail at Station 131HA+42, and continuing northeasterly to Station 143EW+43, 196'RT. From there it turns and runs southeasterly, crossing STH 100 at Station 568SN+11, and continuing southeasterly to Station 169EW+82, 142'RT. From there it turns and runs easterly to Station 171EW+23, 112'RT where it turns and runs northeasterly, crossing IH 94 at Station 172EW+56, and continues northeasterly, crossing USH 45 at Station 301NS+17. From there it continues northeasterly to the 96th Street Substation in the northeast quadrant of the Zoo Interchange.

Contact Ivan Keller (262-422-0326) of American Transmission Company 7 days in advance to coordinate locations and any excavation near their facilities.

**Level 3 Communications** has an underground communications line in the Union Pacific Railroad corridor beginning beyond the westerly project limits and running easterly between the existing railroad tracks and an existing spur track, crossing USH 45/ IH 894 at Station 229NS+80 and continuing easterly to beyond the project limits. Level 3 Communications will relocate a portion of this line between an existing handhole located approximately 350' west of the centerline of USH 45/IH 894 and an existing handhole at the north right of way of the railroad located approximately 400' east of the centerline of USH 45/IH 894 prior to construction.

Level 3 Communications will construct a new underground communications line beginning at the existing handhole located approximately 350' west of the centerline of USH 45/IH 894 and running northerly under the UPRR tracks to a point on the north right of way of the UPRR where it will turn and run easterly to a Midwest Fiber Networks handhole at Station 230NS+79, 228'LT. From there it will turn and run northeasterly in a joint location with a Midwest Fiber Networks duct package, to Station 231NS+18, 174'LT where it will turn and run easterly, crossing USH 45 at Station 231NS+40, and continue easterly to Station 231NS+60, 156'RT. From there it will leave the joint location with Midwest Fiber Networks and run southeasterly to the existing handhole at the north right of way of the railroad located approximately 400' east of the centerline of USH 45/IH 894.

Contact Brahim Gaddour (414-704-1026 office/414-908-1027 cell) of Level 3 Communications 7 days in advance to coordinate locations and any excavation near their facilities.

**Midwest Fiber Network** has existing communications facilities within the project limits in the following locations:

- An underground communications line beginning at a handhole at Station 194BL+46, 8'LT and running northeasterly to a manhole at Station 40TF+14, 39'LT where it turns and runs easterly, crossing USH 45 at Station 324NS+91, to a manhole located at Station 41TRN+19, 48'LT. From there it turns and runs southerly down the west side of N. 95th Street to beyond the southerly project limits near N. 95$^{th}$ Street. This line will remain in place without adjustment.
- An underground communications line near the Union Pacific Railroad corridor, beginning beyond the westerly project limits and running easterly along the north right of way of the railroad, crossing USH 45 at Station 230NS+80, and continuing easterly to a handhole at Station 231NS+19, 167'RT. From there it continues easterly to beyond the easterly project limits. Midwest Fiber Networks will relocate portions of this line between Station 230NS+79, 228'LT and Station 231NS+19, 167'RT prior to construction. The remaining portions of this line will remain in place without adjustment.

Midwest Fiber Networks will construct a new underground communications line beginning at Station 230NS+79, 228'LT and running northeasterly to Station 231NS+18, 174'LT where it will turn and run easterly, crossing USH 45 at Station 231NS+40, and continue easterly to Station 231NS+60, 156'RT. From there it will turn and run southerly to the existing handhole at Station 231NS+19, 167'RT.

Contact Richard Trgovec (414-459-3554 office) of Midwest Fiber Network 7 days in advance to coordinate locations and any excavation near their facilities.

**Milwaukee, City of - Cable** has existing underground cable facilities in City of Milwaukee - Conduit along Bluemound Road beginning beyond the westerly project limits and running easterly in the eastbound lanes of W. Bluemound Road, crossing USH 45 on the Bluemound Road structure and continuing easterly to beyond the project limits. This line will remain in place without adjustment.

Contact Brian Pawlak (414-286-5970 office) of the City of Milwaukee - Cable 7 days in advance to coordinate locations and construction activities.

**Milwaukee, City of - Conduit** has an existing underground conduit package along Bluemound Road beginning beyond the westerly project limits and running easterly in the eastbound lanes of W. Bluemound Road, crossing USH 45 on the Bluemound Road structure and continuing easterly to beyond the project limits. This conduit package will remain in place without adjustment.

Contact Karen Rogney (414-286-3243) of the City of Milwaukee – Conduit 7 days in advance to coordinate locations and any excavation near their facilities.

**Milwaukee, City of - Lighting** has overhead and underground street lighting facilities along the curb lines of N. 95$^{th}$ Street and along the medians of Bluemound Road and Wisconsin Avenue. The City of Milwaukee will remove existing lighting and install temporary overhead lighting in the project area during construction. Allow 10 working days for the removals and installation of temporary lighting. The City will reinstall permanent lighting facilities during construction. Allow 15 working days for the reinstallation of permanent overhead lighting facilities.

Contact Dennis Miller (414-286-5942 office/ 414-708-4251 cell), George Berdine (414-708-4245) or Thomas Hughs (414-286-3457 office/ 414-708-3175 cell) of the City of Milwaukee - Lighting 10 days in advance to coordinate removals, installation of temporary lighting and reinstallation of the street lighting system.

**Milwaukee, City of – Sanitary** has sanitary sewer facilities within the project limits in the following locations:

- An underground sanitary sewer beginning beyond the westerly project limits and running easterly through the Milwaukee County Zoo parking lot, crossing USH 45 at Station 315NS+67, and continuing easterly to a manhole at Station 315NS+82, 161'RT. From there it turns and runs northerly to a manhole at Station 315NS+98, 160'RT where it turns and runs easterly to beyond the project limits. This line will remain in place without adjustment.
- An underground sanitary sewer beginning at a manhole at Station 330NS+10, 432'RT and running southwesterly to a manhole at Station 329NS+96, 401'RT where it turns and runs westerly, crossing USH 45 at Station 329NS+62, and continuing westerly to a manhole at Station 329NS+40, 252'LT. From there it turns and runs northerly to a manhole at Station 332NS+81, 244'LT where it turns and runs northwesterly and connects to a City of Wauwatosa manhole at Station 25WX+37, 23'RT. This line will remain in place without adjustment. Adjust the manholes as shown in the plans.
- An underground sanitary sewer beginning at a manhole at Station 33WX+12, 22'RT and running easterly along the south side of Wisconsin Avenue to beyond the easterly project limits. This line will remain in place without adjustment. Adjust the manholes as shown in the plans.

City of Milwaukee - Sanitary also has abandoned facilities within the project limits in the following locations:

- An abandoned sanitary sewer beginning beyond the westerly project limits and running easterly through the Milwaukee County Zoo parking lot, crossing USH 45 at Station 315NS+81 and continuing easterly and ending at a manhole at Station 315NS+98, 160'RT.
- An abandoned sanitary sewer beginning at a manhole at Station 330NS+10, 432'RT and running westerly, crossing USH 45 at Station 329NS+75, to a manhole at Station 329NS+65, 94'LT. From there it turns northerly to a manhole at Station 27WX+20, 22'RT where it turns and runs westerly and ends at a manhole at Station 25WX+37, 23'RT.

Contact Jason Barman (414-286-3267 office) of the City of Milwaukee - Sanitary 7 days in advance to coordinate locations and any excavation near their facilities.

**Milwaukee, City of - Signals** has existing signal facilities at the intersections of W. Wisconsin Avenue with N. 95th Street and with N. 97th Street. The City of Milwaukee will reconstruct the signal facilities at the intersection of N. 95$^{th}$ Street with W. Wisconsin Avenue during construction. The signal at the N. 97$^{th}$ Street intersection will be removed.

Contact Al Nichols, Traffic Operations Supervisor (414-286-3686 office/ 414-708-5148 cell) of the City of Milwaukee or Mr. Joseph Blakeman, Traffic Control Engineer (414-286-8070) of the City of Milwaukee 10 working days prior to requiring signal changes for

staging at the intersections. Allow City of Milwaukee forces 5 working days to complete signal modifications.

Contact Al Nichols (414-286-5941 office/ 414-708-5148 cell) of the City of Milwaukee - Signals 7 days in advance to coordinate locations and any excavation near their facilities.

**Milwaukee, City of - Water** has underground water facilities within the project limits in the following locations:

- An underground water main beginning in Adler Street and running northerly, crossing IH 94 at Station 217EW+00, and continuing northerly to Chester Street. This line will remain in place without adjustment.
- An underground water main beginning beyond the easterly project limits south of Bluemound Road and running westerly to Station 815BB+02, 78'LT where it turns and runs northwesterly to Station 815BB+13, 67'RT. From there it turns and runs westerly, crossing USH 45 at Station 314NS+36, and continues westerly to Station 713BC+96, 50'LT. From there it turns and runs southwesterly along the westerly right of way of USH 45 to Station 491NW+70, 35'LT where it turns and runs southwesterly and westerly along the south side of the Milwaukee County Zoo to beyond the project limits. This line will remain in place without adjustment.
- An underground water main beginning beyond the westerly project limits and running easterly along the south side of Bluemound Road to Station 194BL+38, 54'RT where it turns and runs southeasterly to Station 195BL+15, 64'RT and then continues southeasterly to Station 195BL+51, 121'RT. From there it turns and runs easterly, crossing USH 45 at 321NS+30, and continues easterly to Station 198BL+78, 199'RT where it turns and runs northeasterly to Station 199BL+31, 54'RT. From there it turns and runs easterly along the south side of Bluemound Road to beyond the easterly project limits. This line will remain in place without adjustment.
- An underground water main beginning beyond the southerly project limits at N. 95th Street and running northerly along the east side of N. 95th Street to Station 32WX+50, 16'RT where it turns and runs easterly in the eastbound lanes of Wisconsin Avenue to beyond the easterly project limits. This line will remain in place without adjustment.

City of Milwaukee water also has abandoned facilities within the project limits in the following locations:

- An underground water main beginning at Station 815BB+02, 78'RT and running westerly, crossing USH 45 at Station 314NS+27, and continuing westerly to Station 314NS+08, 136'LT where it turns and runs southwesterly along the west side of USH 45 to Station 492NW+43, 45'RT. From there it turns and runs westerly along the south side of the Milwaukee County Zoo and ends at Station 491NW+70, 35'LT.

- An underground water main beginning at Station 194BL+38, 54'RT and running easterly along the south side of Bluemound Road to Station 195BL+45, 58'RT where it turns and runs southeasterly to Station 195BL+65, 78'RT. From there it turns and runs easterly, crossing USH 45 at Station 322NS+90, and continues easterly to Station 198BL+00, 80'RT where it turns and runs northeasterly to Station 198BL+14, 60'RT. From there it turns and runs easterly along the south side of Bluemound Road and ends at Station 199BL+67, 58'RT.

Contact Dave Goldapp (414-286-6301) of the City of Milwaukee 7 days in advance to coordinate locations and any excavation near their facilities.

**Milwaukee County – Electric & Communications** has an existing underground electric line and communication line beginning at a vault at Station 172EW+16, 307'RT and running northwesterly to a vault at Station 171EW+08, 212'RT where they turn and run northerly below the existing Zoo Maintenance Tunnel to a vault at Station 171EW+48, 146'LT. From there the lines continue northerly to beyond the project limits. These lines will remain in place without adjustment.

Milwaukee County also has abandoned facilities within the project limits in the following locations:

- Abandoned underground electric and communications lines beginning at a vault at Station 172EW+16, 307'RT and running northwesterly to the Zoo Maintenance Tunnel at Station 171EW+15, 84'RT. The lines then run northeasterly below the Zoo Maintenance Tunnel to Station 171EW+54, 105'LT where it turns and runs northwesterly to a vault at Station 171EW+48, 146'LT.
- An underground communications line beginning beyond the easterly project limits and running southwesterly, crossing USH 45 at Station 345NS+50, and continuing southwesterly to Station 345NS+47, 69'LT where it turns and runs northerly along the west fence of USH 45 to beyond the northerly project limits.

Contact Karl Hackbarth (414-256-5413 office) of Milwaukee County 7 days in advance to coordinate locations and any excavation near their facilities.

**Milwaukee County – Storm** has existing underground storm sewer facilities within the project limits in the following locations;

- An underground storm sewer beginning at an inlet at Station 571SW+42, 23'LT and running easterly across the Zoo Maintenance Tunnel to a inlet at Station 571SW+55, 20'LT where it turns and runs northeasterly along the east side of a gravel road to beyond the northerly project limits. This line will remain in place without adjustment.
- An underground storm sewer beginning at an inlet at Station 571WS+24, 48'LT and running easterly across the Zoo Maintenance Tunnel to an inlet at Station 571WS+48, 43'LT where it turns and runs southwesterly to a manhole at Station 571WS+36, 22'RT. From there it turns and runs southeasterly to a manhole at

Station 571WS+85, 34'RT where it turns and runs southerly to beyond the southerly project limits. This line will remain in place without adjustment.

- An underground storm sewer beginning at an inlet at Station 708BC+34, 67'LT and running southerly to an inlet at Station 495NW+89, 31'LT where it turns and runs southwesterly in the Milwaukee County Zoo parking lot to beyond the westerly project limits. This line will remain in place without adjustment.

Contact Karl Hackbarth (414-256-5413 office) of Milwaukee County 7 days in advance to coordinate locations and any excavation near their facilities.

**Milwaukee County – Water** has an underground water main connecting the Milwaukee County Zoo and the Zoo Maintenance Facility south of IH 94 beginning beyond the northerly project limits and running southerly east of the Zoo Maintance Tunnel, crossing IH 94 at Station 172EW+71, and continuing to beyond the southerly project limits. This line will remain in place without adjustment.

Milwaukee County Water also has an abandoned water main beginning beyond the easterly project limits north of Wisconsin Avenue and running southwesterly, crossing USH 45 at Station 345NS+47, and continuing southwesterly to beyond the project limits.

Contact Karl Hackbarth (414-256-5413 office) of Milwaukee County 7 days in advance to coordinate locations and any excavation near their facilities.

**MMSD** has existing underground sewer facilities within the project limits in the following locations:

- A 39-inch MIS sanitary sewer beginning beyond the westerly project limits and running easterly along the south line of the Union Pacific Railroad, crossing USH 45/ IH 894 at Station 229NS+04, and continuing easterly to beyond the project limits. Reconstruct the manhole at Station 228NS+96, 57'LT on this line as shown in the plans.
- A 15-inch underground sanitary sewer beginning at a manhole at Station 230NS+40, 76'LT and running southerly, crossing the UPRR tracks, and continuing southerly to a manhole at Station 228NS+96, 57'LT. This line will remain in place without adjustment.
- An underground sanitary sewer beginning beyond the southerly project limits near Underwood Creek and running northerly along the east side of Underwood Creek, crossing IH 94 at Station 101EW+73, and continuing northerly to beyond the project limits. This line will remain in place without adjustment.
- An underground sanitary sewer beginning beyond the southerly project limits near S. 116th Street and running northerly along the center of S. 116th Street, crossing IH 94 at Station 127EW+20, and continuing northerly to beyond the project limits. This line will remain in place without adjustment.
- An underground sanitary sewer beginning beyond the northerly project limits at STH 100 and running southerly along the east side of STH 100, crossing IH 94 at Station 156EW+72, and continuing southerly to a manhole at Station 566SS+67,

133’RT where it turns and runs westerly to a manhole at Station 566SS+56, 70’RT. From there it turns and runs southerly along the east side of STH 100 to beyond the southerly project limits. This line will remain in place without adjustment. MMSD will adjust the manhole at Station 566SS+67, 133’RT during construction.

- A 39-inch MIS sanitary sewer beginning beyond the westerly project limits near STH 100 and running easterly, crossing STH 100 at Station 564SS+30, and continuing easterly, crossing IH 94 at Station 168EW+88, and continuing easterly to a manhole at Station 480NW+25, 41’RT. From there it turns and runs northeasterly to a manhole at Station 483NW+44, 36’RT where it turns and runs northerly through the Milwaukee County Zoo parking lot to a manhole in Bluemound Road at Station 186BL+91, 20’LT. From there it turns and runs easterly to a manhole at Station 188BL+62, 20’LT where it turns and runs northerly in the northbound lane of N. 99th Street to a manhole in Wisconsin Avenue at Station 18WX+78, 11’LT. From there it turns and runs easterly along the median of Wisconsin Avenue, crossing USH 45 at Station 334NS+43, and continues easterly to beyond the project limits. This line will remain in place without adjustment. Reconstruct manholes at Station 30WX+21, 10’LT and Station 574SA+71, 31’LT on this line as shown in the plans. Abandon a manhole at Station 168EW+61, 13’RT on this line as shown in the plans.
- A 15-inch underground sanitary sewer beginning at a blind connection to a 39-inch MIS sanitary sewer at Station 165EW+30, 152’RT and running southeasterly to a manhole at Station 165EW+33, 157’RT. From there the line continues southeasterly, crossing the Hank Aaron State Trail at Station 156HA+08, and continues southeasterly to beyond the project limits. Relocate, reconstruct, remove, abandon and leave in place this line as shown in the plans.

MMSD also has additional abandoned sanitary sewer and storm sewer within the project limits in the following locations:

- An underground sanitary sewer beginning beyond the northerly project limits near STH 100 and running southerly along the east side of STH 100, crossing IH 94 at Station 156EW+64, and continuing southerly to a manhole at Station 566SS+56, 70’RT.
- An underground sanitary sewer beginning at a manhole at Station 480NW+25, 41’RT and running easterly to an abandoned manhole at Station 482NW+87, 144’RT where it turns and runs to a manhole at Station 483NW+43, 36’RT.

The MMSD will adjust manholes in roadways throughout the project limits during construction. Contact Debra Jensen (414-225-2143) of MMSD 5 days prior to any paving operations to coordinate manhole adjustments.

Contact Debra Jensen (414-225-2143) of MMSD 7 days in advance to coordinate locations and any excavation near their facilities.

**Sprint** has underground communication facilities within the project limits in the following location:

- An underground communications line in the Union Pacific Railroad corridor beginning beyond the northerly project limits and running southerly along the east right of way of the corridor, crossing IH 94 at Station 161EW+17, and continuing southerly to beyond the project limits. This line will remain in place without adjustment.
- An underground communications line in the Union Pacific Railroad corridor beginning beyond the westerly project limits and running easterly along the spur track in the corridor, crossing USH 45/ IH 894 at Station 229NS+48 and continuing easterly to beyond the project limits. This line will remain in place without adjustment.

Sprint also has an abandoned communications line in the Union Pacific Railroad corridor beginning beyond the northerly project limits and running southerly approximately 20' east of the west right of way of the corridor, crossing IH 94 at Station 159EW+09, and continuing southerly to beyond the project limits.

Contact James Burton (708-955-6659) of Sprint 7 days in advance to coordinate locations and any excavation near their facilities.

**TCA** has underground and overhead communication facilities within the project limits in the following location:

- An overhead communications line beginning beyond the northerly project limits and running southeasterly on We Energies poles, crossing IH 94 at Station 123EW+57, and continuing southeasterly to a pole at Station 124EW+14, 185'RT where it turns and runs easterly to a pole at Station 130EW+51, 192'RT. TCA will remove this overhead line between a pole at Station 123EW+15, 224' LT and a pole at Station 124EW+10, 186' RT prior to construction. TCA will also construct a new underground line beginning at the pole at Station 123EW+15, 224' LT and running southerly to Station 123EW+00, 165' LT where it will turn and run southeasterly, crossing IH 94 at Station 123EW+50, and continue southeasterly to end at a pole at Station 124EW+09, 168' RT prior to construction.
- An underground communications line beginning at a pole at Station 130EW+51, 192'RT and running northerly to the previously described AT&T Corporation duct package at Station 130EW+79, 126'LT where it turns and runs in a joint location with AT&T Corporation along the Hank Aaron State Trail to Station 154HA+28, 33' LT. From there it turns and runs southerly, crossing the Hank Aaron State Trail, and continues southerly to beyond the project limits. This line will remain in place without adjustment.
- An underground communications line beginning beyond the westerly project limits near W. Bungalow Parkway and running easterly along the north side of W. Bungalow Parkway to Station 39TD+60, 27'LT where it turns and runs southerly along the west side of S. 100th Street, crossing Schlinger Avenue at Station 526SCH+19, and continues southerly to Station 37TD+10, 26'LT. From there the line turns and runs easterly, crossing S. 100th Street at Station 37TD+11, and continues easterly to Station 531SCH+51, 30'RT where it turns and runs

northeasterly, crossing Schlinger Avenue at Station 531SCH+66, and continues northeasterly to a pole at Station 531SCH+80, 27'LT. This line will remain in place without adjustment.

- An overhead communications line beginning at a pole at Station 531SCH+80, 27'LT and running northeasterly on We Energies poles along the east right of way of USH 45/ IH 894 to a pole at Station 182HA+46, 108'RT where it turns and runs easterly to beyond the easterly project limits. This line will remain in place without adjustment.
- An underground communications line in the Union Pacific Railroad corridor beginning beyond the westerly project limits and running easterly north of the railroad tracks, crossing USH 45/ IH 894 at Station 230NS+35 and continuing easterly to beyond the project limits. This line will remain in place without adjustment.
- An underground communications line beginning at a handhole at Station 230NS+55, 150' RT and running southerly under the Union Pacific Railroad to an AT&T Corporation duct package at approximately Station 227NS+45, 108' RT. TCA will abandon this line prior to construction.
- An underground communications line in an AT&T Corporation duct package beginning at approximately Station 227NS+45, 108' RT and running southerly along the east right of way of USH 45/IH 894 to beyond the southerly project limits. TCA will install a new line in the AT&T Corporation duct package beginning at approximately Station 227NS+45, 108' RT and running northerly to Station 231NS+05, 161' RT. From there TCA will exit the AT&T Corporation duct package and construct new conduit to tie into their existing line at an existing handhole at Station 230NS+55, 150' RT prior to construction.

TCA also has an abandoned underground communications line beginning at Station 784GE+67, 197'RT and running southwesterly to a handhole at Station 530SCH+33, 25'LT where it turns and runs westerly along the north side of Schlinger Avenue to Station 526SCH+93, 29'LT. From there it turns and runs northerly along the east side of S. 100th Street to Station 38TD+30, 41'RT.

Contact Debbie Sadler (414-459-3572 office/ 414-651-0036 cell) of Northwind Technical Services 7 days in advance to coordinate locations and any excavation near their facilities.

**Time Warner Cable** has existing overhead and underground communications facilities within the project limits in the following locations:

- An underground communications line beginning at a manhole at Station 39TF+66, 21'LT and running northerly to Station 39TF+87, 30'LT where it turns and runs easterly, crossing USH 45 at Station 324NS+38, and continuing easterly to a manhole at Station 201BL+20, 79'LT. From there it turns and runs southerly to beyond the southerly project limits. This line will remain in place without adjustment.
- An underground communications line beginning beyond the southerly project limits and running northerly along the easterly curb line of S. Curtis Road to beyond the northerly project limits. This line will remain in place without adjustment.

- An overhead communications line beginning at a We Energies pole at Station 210NS+95, 198'LT and running easterly, crossing USH 45/ IH 894 at Station 211NS+22, and continuing easterly to a We Energies pole at Station 211NS+89, 311'RT. Time Warner Cable will relocate this line prior to construction.
- An overhead communications line on We Energies poles beginning at a pole at Station 211NS+89, 311'RT and running southerly, east of the easterly right of way of USH 45/ IH 894, to a pole at Station 705LA+09, 49'RT where it turns and runs southwesterly, crossing the USH 45/ IH 894 northbound on-ramp from Lincoln Avenue at Station 704LA+38, and continuing southwesterly to a pole at Station 703LA+71. From there it turns and runs southerly, crossing Lincoln Avenue at Station 49L+39, and continues southerly to beyond the southerly project limits. Time Warner Cable will relocate a portion of this line between Station 706LA+09, 64'RT and Station 201NS+34, 274' RT prior to construction. Time Warner will also reconstruct the existing overhead communications line in its existing location between Station 201NS+66, 272' RT and a point beyond the southerly project limits prior to construction. The remaining portions of this line will remain in place without adjustment.
- An overhead communications line beginning at a We Energies pole at Station 703LD+41, 50'LT and running northerly along the westerly right of way of USH 45/ IH 894 to a pole at Station 228NS+24, 241'LT where it turns and runs easterly to a pole at Station 228NS+31, 194'LT. From there it turns and runs northeasterly to a pole at Station 228NS+98, 186'LT. Time Warner Cable will remove a portion of this line between Station 209NS+13, 210' LT and Station 210NS+95, 198'LT prior to construction. The remaining portions of this line will remain in place without adjustment.
- An underground communications line beginning at a pole at Station 228NS+98, 186'LT and running easterly approximately 20 feet north of the southerly right of way of the Union Pacific Railroad corridor, crossing USH 45/ IH 894 at Station 228NS+48, and continuing easterly to beyond the project limits. This line will remain in place without adjustment.
- An overhead communications line beginning beyond the southerly project limits near the northbound USH 45/ IH 894 off-ramp to Greenfield Avenue and running northerly along the east side of the ramp, crossing Greenfield Avenue at Station 519G+50, and continuing northerly approximately 15' west of the east right of way of USH 45/ IH 894, crossing Schlinger Avenue at Station 531SCH+73, and continuing northerly to a pole at Station 531SCH+80, 27'LT. From there the line turns and runs easterly along the north side of Schlinger Avenue to beyond the easterly project limits. This line will remain in place without adjustment.
- An underground communications line beginning at a We Energies pole at Station 752GB+07, 45'RT and running easterly to a pole at Station 751GB+90, 251'RT. This line will remain in place without adjustment.
- An underground communications line beginning at a We Energies pole at Station 762GE+59, 43'RT and running westerly, crossing USH 45/ IH 894 at Station 262NS+50, and continuing westerly to a pole at Station 19TD+77, 30'RT. Time Warner cable will reconstruct a portion of this line between Station 19TD+76,

76’RT and Station 19TD+77, 30’RT prior to construction. The remaining portions of this line will remain in place without adjustment.

- An overhead communications line beginning at a We Energies pole at Station 19TD+77, 30’RT and running southerly to a pole at Station 17TD+64, 28’RT, where it turns and runs westerly, crossing S. 100th Street at Station 17TD+64, and continues westerly to beyond the project limits. Time Warner cable will relocate portions of this line prior to construction.
- An overhead communications line on We Energies poles beginning at a pole at Station 19TD+77, 30’RT and running northerly along the east side of S. 100th Street to a pole at Station 43TD+92, 25’RT. Time Warner Cable will relocate this line outside the project limits prior to construction.
- An overhead communications line on We Energies poles running north-south, crossing the Hank Aaron State Trail at Station 173HA+00. This line will remain in place without adjustment.
- An underground communications line beginning beyond the southerly project limits near Burleigh Street and running northerly, crossing Burleigh Street in the area of the temporary Wauwatosa Water Booster Station, and continuing northerly to beyond the project limits. This line will remain in place without adjustment.

Time Warner Cable will relocate, construct and reconstruct communication facilities in the project area at the following locations prior to construction:

- A new underground communications line beginning at Station 19TD+76, 76’RT and running westerly, crossing S. 100th Street at Station 19TD+76, to Station 19TD+76, 39’LT where it will turn and run southerly along the west right of way of S. 100th Street to Station 17TD+65, 39’LT.
- A new underground communications line beginning at a pole at Station 706LA+49, 70’ RT and running southerly to Station 706LA+25, 67’ RT where it will turn and run westerly parallel to a We Energies underground electric conduit, crossing USH 45/IH 894 at Station 205LA+33, and continue westerly to a new pole at Station 704LD+38, 42’ LT where it will turn and run southerly to a pole at Station 703LD+76, 51’ LT.
- A new underground conduit beginning at a pole at Station 706LA+49, 70’ RT and running southerly to Station 706LA+09, 64’ RT where it will turn and run southwesterly parallel to a We Energies underground electric conduit, crossing LA Ramp at Station 704LA+24 and Lincoln Avenue at Station 49L+57, and continue southwesterly to Station 201NS+34, 274’ RT.

Time Warner Cable also has abandoned communications lines within the project limits in the following locations:

- Two abandoned underground communications lines beginning at Station 526SCH+17, 47’RT and running easterly along the south side of Schlinger Avenue to Station 531SCH+10, 60’RT.
- An abandoned underground communications line beginning at Station 751GB+38, 7’LT and running northeasterly to a pole at Station 751GB+90, 251’RT.

Contact Steve Cramer (414-277-4045) of Time Warner Cable 7 days in advance to coordinate locations and any excavation near their facilities.

**Wauwatosa, City of - Lighting** has existing lighting facilities within the project limits in the following locations:

- Light poles and underground cables on both sides of W. Wisconsin Avenue beginning at the west right of way of N. 95th Street and running westerly along W. Wisconsin Avenue to beyond the project limits. Reconstruct, remove, abandon and leave in place these facilities as shown in the plans.
- Light poles and underground cables along the east side of N. 97th Street between Bluemound Road and W. Wisconsin Avenue. Reconstruct, remove, abandon and leave in place these facilities as shown in the plans.

Contact Bill Wehrley (414-479-8929) of the City of Wauwatosa 7 days in advance to coordinate locations and any excavation near their facilities.

**Wauwatosa, City of – Sanitary** has existing underground sanitary sewer facilities within the project limits in the following locations:

- An underground sanitary sewer beginning beyond the southerly project limits at N. 97th Street and running northerly along the east side of N. 97th Street to a manhole at Station 25WX+37, 23'RT where it turns and runs westerly in the eastbound lanes of Wisconsin Avenue to a manhole at Station 24WX+48, 23'RT. From there it turns and runs northerly and ends at a MMSD manhole at Station 24WX+49, 10'LT. This line will remain in place without adjustment. Adjust the manholes as shown in the plans.
- An underground sanitary sewer beginning at a manhole at Station 24WX+04, 22'RT and running westerly in the eastbound lanes of Wisconsin Avenue to beyond the westerly project limits. This line will remain in place without adjustment. Adjust the manholes as shown in the plans.
- An underground sanitary sewer beginning at a MMSD manhole at Station 127EW+19, 187'RT and running northwesterly to a manhole at Station 126EW+40, 151'RT. From there the line runs westerly to a manhole at Station 125EW+94, 151'RT and then runs northwesterly, crossing IH 94 at Station 123EW+41, and continuing northwesterly to Station 120EW+97, 174'LT. From there it turns and runs northerly to a manhole at Station 120EW+94, 197'LT where it turns and runs northwesterly along the center of Ripley Avenue to beyond the project limits. This line will remain in place without adjustment.

City of Wauwatosa - Sewer has an abandoned sanitary sewer beginning at a manhole at Station 126EW+40, 151'RT and running northwesterly, crossing IH 94 at Station 123EW+79, and continuing northwesterly to a manhole at Station 120EW+94, 197'LT.

Contact Bill Wehrley (414-479-8929) of the City of Wauwatosa 7 days in advance to coordinate locations and any excavation near their facilities.

**Wauwatosa Water Utility** has existing underground water facilities within the project limits in the following locations:

- A 24-inch transmission water main beginning beyond the westerly project limits near Wisconsin Avenue and running easterly along the north side of Wisconsin Avenue to Station 26WX+71, 76'LT where it turns and runs northeasterly to Station 27WX+25, 130'LT. From there it turns and runs easterly, crossing USH 45 at Station 335NS+63, and continues easterly to Station 31WX+02, 130'LT where it turns and runs southerly to Station 31WX+02, 76'LT. From there it turns and runs easterly along the north side of Wisconsin Avenue to beyond the easterly project limits. Relocate, reconstruct, remove, abandon and leave in place portions of this line as shown in the plans. Install, test and operate a State furnished temporary Water Booster Station at Burleigh Street as shown in the plans as part of the water main relocation at W. Wisconsin Avenue.
- An underground water main beginning beyond the southerly project limits at N. 97th Street and running northerly along the west side of N. 97th Street to Station 25WX+08, 34'RT where it turns and runs westerly along the south side of Wisconsin Avenue to Station 22WX+23, 34'RT where it turns and runs northerly to Station 22WX+23, 12'RT. From there it turns and runs westerly in the eastbound lanes of Wisconsin Avenue to beyond the westerly project limits. This line will remain in place without adjustment.
- An underground water main beginning at Station 22WX+23, 34'RT and running southerly along the east side of S. 98th Street to beyond the southerly project limits. This line will remain in place without adjustment. Reconstruct the hydrant at the southeast corner of the W. Wisconsin Avenue & N. 98th Street intersection as shown in the plans.
- An underground water main beginning beyond the westerly project limits near N. 121st Street and running easterly along the north side of W. Fairview Avenue, crossing N. 121st Street, to Station 115EW+65, 136'LT where it turns and runs northerly along the east side of N. 120th Street to beyond the northerly project limits. This line will remain in place without adjustment.
- An underground water main beginning beyond the easterly project limits near Burleigh Street and running westerly in the median of Burleigh Street to beyond the westerly project limits. Install, test and operate the State furnished temporary Water Booster Station as shown in the plans.

Wauwatosa Water Utility also has an abandoned 24-inch transmission water main beginning at Station 26WX+71, 76'LT and running easterly, crossing USH 45 at Station 335NS+09, and continuing easterly and ending at Station 31WX+02, 76'LT.

Contact Jim Wojcehowicz (414-479-8965) of the Wauwatosa Water Utility 7 days in advance to coordinate locations and any excavation near their facilities.

**We Energies – Electric** has overhead and underground electric facilities within the project limits in the following locations:

- An overhead electric line beginning beyond the southerly project limits near IH 94 and running northerly to a pole at Station 103EW+50, 151'RT where it turns and runs northeasterly, crossing IH 94 at Station 103EW+96, to a pole at Station 104EW+42, 151'LT. From there it turns and runs northerly to beyond the northerly project limits. This line will remain in place without adjustment.
- An overhead electric line beginning beyond the westerly project limits near W. Fairview Avenue and running easterly along the north side of W. Fairview Avenue, crossing N. 121st Street at Station 14CT+99, to a pole at Station 113EW+94, 183'LT where it turns and runs northerly to beyond the northerly project limits. This line will remain in place without adjustment.
- Two overhead electric lines running parallel beginning beyond the northerly project limits near IH 94 and running southerly to poles at Station 123EW+17, 149'LT where they turn and run southeasterly, crossing IH 94 at Station 123EW+68, to poles at Station 124EW+30, 166'RT. From there one line turns and runs easterly along the south side of W. Fairview Avenue, crossing W. Fairview Avenue at Station 24FV+98, to beyond the easterly project limits near Fairview Avenue. The other line continues southerly to beyond the southerly project limits near IH 94. We Energies Electric will relocate these lines from poles near Station 123EW+23, 229' LT running southerly across IH 94 to poles near Station 124EW+16, 167' RT. The remaining portions of these lines will remain in place without adjustment.
- An underground electric duct package beginning beyond the northerly project limits near IH 94 and running southerly along the east right of way of STH 100, crossing IH 94 at Station 158EW+00, to Station 159EW+38, 295'RT where it turns and runs southwesterly, crossing the Hank Aaron State Trail at Station 148HA+14, to beyond the southerly project limits near the Hank Aaron State Trail. This duct package will remain in place without adjustment.
- An overhead electric line beginning at a pole at Station 164EW+73, 261'RT and running southwesterly, crossing the Hank Aaron State Trail at Station 153HA+48, to beyond the southerly project limits near the Hank Aaron State Trail. This line will remain in place without adjustment.
- An underground electric duct package beginning at Station 159EW+38, 295'RT and running southeasterly to Station 164EW+22, 278'RT where it turns and runs northeasterly to Station 164EW+66, 231'RT. From there it turns and runs southeasterly to a We Energies utility tunnel at Station 167EW+63, 243'RT. This line will remain in place without adjustment.
- An underground electric duct package beginning at Station 159EW+38, 295'RT and running southeasterly to Station 166EW+94, 309'RT where it turns and runs northeasterly to a We Energies utility tunnel at Station 167EW+63, 243'RT. From there the duct package continues northeasterly, crossing IH 94 at Station 171EW+13 in a We Energies utility tunnel, and continues northeasterly along the south right of way of the Milwaukee County Zoo, crossing USH 45 at Station 301NS+66 in a We Energies utility tunnel, to the 96th Street Substation in the northeast quadrant of the

Zoo Interchange, beyond the easterly project limits near USH 45. This line will remain in place without adjustment.

- An underground electric line beginning at the 96th Street Substation and running northerly along the east right of way of USH 45 in private easement to the south side of Bluemound Road where it turns and runs easterly along the south side of Bluemound Road to Station 201BL+32, 88'RT. From there it turns and runs northerly, crossing Bluemound Road at Station 201BL+32, to station 42TRN+21, 66'LT where it turns and runs easterly, crossing N. 95th Street to a new pole at Station 42TRN+21, 62'RT. This line will remain in place without adjustment.
- Two direct buried electric lines running in tandem approximately 10' apart beginning at the 96th Street Substation and running northerly along the east side of Milwaukee Montessori School to N. 95th Street and continues northerly along the west side of N. 95th Street to Station 202BL+24, 76'RT. From there they turn and run westerly to Station 201BL+53, 64'RT where they turn and run northerly, crossing Bluemound Road at Station 201BL+50 and Station 201BL+58, and continue northerly along the west side of N. 95th Street, crossing Wisconsin Avenue at Station 31WX+43, to Station 51TRN+44, 68'LT. From there they turn and run easterly to Station 51TRN+42, 74'RT where they turn and run northerly along the east right of way of USH 45 to beyond the northerly project limits. These lines will remain in place without adjustment.
- An underground electric line beginning from beyond the easterly project limits near Wisconsin Avenue and running westerly along the north right of way of Wisconsin Avenue to Station 33WX+33, 93'LT where it turns and runs northerly along the east right of way of USH 45 to beyond the northerly project limits. This line will remain in place without adjustment.
- An overhead electric line crossing the Hank Aaron State Trail at Station 173HA+00. This line will remain in place without adjustment.
- An overhead electric line beginning beyond the westerly project limits near S. 100th Street to a pole at Station 17TD+65, 28'RT where it turns and runs northerly along the west fence of USH 45 / IH 894, crossing Schlinger Avenue at Station 526SCH+83, to a pole at Station 43TD+92, 25'RT. We Energies will abandon this line in the project limits prior to construction. Portions of this line may have been encountered and/or removed as part of the Zoo Interchange - Phase 1 project.
- An overhead electric line beginning at a pole at Station 39TD+60, 36'RT and running westerly, crossing S. 100th Street at Station 39TD+60, to beyond the westerly project limits near W. Bungalow Parkway. We Energies will abandon this line in the project limits prior to construction.
- An underground electric duct package beginning at the 96th Street Substation and running southerly, crossing IH 94 at Station 200EW+94 in a We Energies utility tunnel, to Station 799FC+99, 18'RT where it turns and runs southwesterly along the southeast right of way of the Zoo Interchange, crossing the Hank Aaron State Trail at Station 181HA+66 and Schlinger Avenue at Station 531SCH+58, to Station 531SCH+26, 94'RT. From there it turns and runs southerly, approximately 20' west of the east right of way of USH 45/ IH 894 to Station 760GA+81, 31'RT where it turns and runs southwesterly, crossing the USH 45/ IH 894 northbound on-ramp from Greenfield Avenue at Station 760GA+50, to Station 760GA+27, 24'LT. From

there, it turns and runs southerly, crossing Greenfield Avenue at Station 518G+71, to Station 751GB+62, 32'LT where it turns and runs easterly, crossing the USH 45/ IH 894 northbound off-ramp to Greenfield Avenue at Station 751GB+62, to Station 751GB+55, 61'RT. From there it turns and runs southerly to a pole farm at approximately Station 739GB+25, 166'RT. This line will remain in place without adjustment.

- An overhead electric line beginning at a pole farm at Station 590SE+73, 273'RT and running southerly along the east right of way of USH 45/ IH 894, crossing the Hank Aaron State Trail at Station 183HA+13 and Schlinger Avenue at Station 531SCH+73, and continues southerly approximately 15' west of the east right of way of USH 45/ IH 894, crossing Greenfield Avenue at Station 519G+49, to a pole farm at approximately Station 739GB+92, 234'RT. This line will remain in place without adjustment.
- An overhead electric line beginning at a pole farm at approximately Station 739GB+92, 234'RT and running southerly east of the east right of way of USH 45/ IH 894 to a pole at Station 709LA+80, 79'RT where it turns and runs southwesterly, crossing the USH 45/ IH 894 northbound on-ramp from Lincoln Avenue at Station 708LA+70, to a pole at Station 708LA+13. From there it turns and runs southerly, crossing Lincoln Avenue at Station 48L+05, and continues southerly to beyond the southerly project limits. We Energies will relocate one of the three existing circuits on this overhead facility from Station 710+15, 85'RT to Station 707LA+84, 58' LT prior to construction. The remaining portions of this line will remain in place without adjustment.
- An overhead electric line beginning at a pole farm at approximately Station 739GB+92, 234'RT and running southerly east of the east right of way of USH 45/ IH 894 to a pole at Station 705LA+09, 49'RT where it turns and runs southwesterly, crossing the USH 45/ IH 894 northbound on-ramp from Lincoln Avenue at Station 704LA+38, to a pole at Station 703LA+71. From there it turns and runs southerly, crossing Lincoln Avenue at Station 49L+39, and continues southerly to beyond the southerly project limits. We Energies will relocate a portion of this line from Station 706LA+09, 64' RT to beyond the southerly project limits near Lincoln Avenue prior to construction. The remaining portions of this line will remain in place without adjustment.
- An overhead electric line beginning at a pole at Station 182HA+46, 108'RT and running easterly along the south side of the Hank Aaron State Trail to beyond the easterly project limits near the Hank Aaron State Trail. This line will remain in place without adjustment.
- An underground electric line beginning at a pole at Station 762GA+86, 68'RT and running westerly, crossing the northbound USH 45/ IH 894 on-ramp from Greenfield Avenue at Station 762GA+83, to Station 762GA+83, 30'LT where it turns and runs southerly, crossing Greenfield Avenue at Station 518G+46, to Station 751GB+45, 69'LT. From there it turns and runs easterly, crossing the USH 45/ IH 894 northbound off-ramp to Greenfield Avenue at Station 751GB+38, to a pole at Station 751GB+46, 47'RT. This line will remain in place without adjustment.

- An underground electric line beginning at a pole at Station 762GA+31, 60’RT and running southwesterly to Station 762GA+08, 47’RT where it turns and runs westerly, crossing the northbound USH 45/ IH 894 on-ramp from Greenfield Avenue at Station 762GA+06, to Station 762GA+05, 24’LT. From there it turns and runs southerly, crossing Greenfield Avenue at Station 518G+57, to Station 751GB+56, 40’LT. From there it turns and runs easterly, crossing the USH 45/ IH 894 northbound off-ramp to Greenfield Avenue at Station 751GB+48, to a pole at Station 751GB+46, 47’RT. This line will remain in place without adjustment.
- An overhead electric line beginning beyond the westerly project limits near USH 45/ IH 894 and running easterly, crossing USH 45/ IH 894 at Station 235NS+10, to beyond the easterly project limits. We Energies will relocate this overhead line within the project limits prior to construction.
- An underground conduit being occupied by Windstream beginning at a pole farm at approximately Station 739GB+92, 234’RT and running westerly to Station 739GB+21, 44’RT where it turns and runs southerly along the east right of way of USH 45/ IH 894 to Station 231NS+11, 145’RT. From there it turns and runs westerly, north of the northerly most Union Pacific Railroad track in the Union Pacific Railroad corridor, to beyond the westerly project limits. This line will remain in place without adjustment.
- An underground electric line beginning beyond the easterly project limits and running westerly, north of the northerly most Union Pacific Railroad track in the Union Pacific Railroad corridor to a pole at Station 230NS+51, 216’LT where it turns into an overhead electric line and turns and runs southerly, crossing the Union Pacific Railroad corridor, to a pole at Station 228NS+31, 194’LT. From there it turns and runs westerly to a pole at Station 228NS+24, 241’LT where it turns and runs southerly along the west right of way of USH 45/ IH 894, crossing Lincoln Avenue at Station 44L+86, to a pole at Station 45L+00, 57’RT. This line will remain in place without adjustment.
- An overhead electric line beginning at a pole at Station 705LA+09, 49’RT and running westerly, crossing USH 45/ IH 894 at Station 204NS+70, to a pole at Station 704LD+15, 49’LT and continues westerly to beyond the westerly project limits. We Energies will relocate this line from Station 705LA+09, 49’RT to Station 704LD+15, 48’LT prior to construction. The remaining portions of this line will remain in place without adjustment.
- An underground electric line beginning at a pole at Station 44L+62, 109’LT and running southerly to a manhole in Lincoln Avenue at Station 44L+68, 18’LT where it turns and runs easterly, crossing over USH 45/ IH 894 on the Lincoln Avenue Bridge, to a manhole at Station 48L+00, 11’LT. From there it turns and runs southerly to a pole at Station 47L+98, 56’RT. This line will remain in place without adjustment.
- An overhead electric line beginning beyond the southerly project limits near IH 94 and running northwesterly, crossing IH 94 at Station 212EW+94, to beyond the northerly project limits. This line will remain in place without adjustment.

We Energies - Electric will relocate, construct and reconstruct electric facilities in the project area at the following locations prior to construction:

- Two new underground electric conduits running parallel and 20’ apart beginning at poles at Station 123EW+14, 224’ LT and running southerly to Station 123EW+14, 172’ LT where they turn and run southeasterly, crossing IH 94 near Station 123EW+66, to We Energies poles at Station 124EW+22, 173’ RT.
- A new underground conduit beginning at a new pole at Station 234NS+83, 164’ RT and running westerly, crossing USH 45/IH 894 at Station 234NS+69, to beyond the westerly project limits.
- A new underground conduit beginning at a new pole at Station 710LA+15, 85’RT and running southwesterly, crossing LA Ramp at Station 708LA+65, to a new pole at Station 707LA+84, 58’ LT.
- A new underground conduit beginning at a new pole at Station 706LA+09, 64’ RT and running southwesterly, crossing LA Ramp at Station 704LA+24 and Lincoln Avenue at Station 49L+57 to Station 201NS+64, 274’ RT.
- A new underground conduit beginning at a new pole at Station 706LA+25, 67’ RT and running westerly, crossing USH 45/IH 894 at Station 205LA+33, to a new pole at Station 704LD+13, 48’ LT.

We Energies - Electric also has abandoned electric lines within the project limits in the following locations:

- An underground electric line beginning beyond the southerly project limits near IH 94 and running northeasterly, crossing the Hank Aaron State Trail at Station 131HA+56, to Station 142EW+42, 330’RT where it turns and runs southeasterly to Station 148EW+15, 357’RT. From there it turns and runs easterly to Station 154EW+07, 168’RT where it turns northeasterly to Station 154EW+34, 34’RT. From there it turns and runs easterly, crossing STH 100 at Station 569SN+93, to Station 156EW+16, 8’RT where it turns southeasterly to Station 159EW+96, 198’RT, crossing the Union Pacific Railroad, to Station 162EW+97, 173’RT. From there it turns and runs southeasterly to Station 164EW+47, 214’RT where it turns and run easterly to Station 169EW+89, 77’RT
- A We Energies owned underground conduit beginning at the south end of the We Energies Adler Tunnel and running southwesterly, crossing under the Hank Aaron State Trail at Station 182HA+00 and Schlinger Avenue at Station 530SCH+43 and Greenfield Avenue at Station 517G+98 and the USH 45/ IH 894 northbound off-ramp to Greenfield Avenue at Station 744GB+42, to approximately Station 239NS+15, 133’RT.
- An underground electric line beginning beyond the westerly project limits near USH 45 in the Milwaukee County Zoo and running northeasterly to Station 492NW+54, 67’RT where it turns and runs northerly to Station 315NS+50, 123’LT. From there it turns and runs westerly into the Milwaukee County Zoo, beyond the westerly project limits near USH 45/ IH 894. Portions of this line may have been encountered and/or removed as part of the Zoo Interchange - Phase 1 project.

- Two parallel underground electric lines beginning at the 96th Street Substation in the northeast quadrant of the Zoo Interchange and running northerly along the east right of way of UHS 45/ IH 894 to Station 322NS+45, 119'RT where they turn and run easterly along the south side of Bluemound Road to Station 202BL+63'RT. From there they turn and runs northerly in the southbound lanes of N. 95th Street, crossing Wisconsin Avenue at Station 32WX+17 to Station 51TRN+43, 1'LT. Portions of this line may have been encountered and/or removed as part of the Zoo Interchange - Phase 1 project.

Contact Erich Wuestenhagen (414-651-3948 cell) of We Energies 7 days in advance to coordinate locations and any excavation near their facilities.

**We Energies – Gas** has underground gas facilities within the project limits in the following locations:

- An 24-inch high pressure underground gas line beginning beyond the southwesterly project limits near W. National Avenue and running northeasterly in the westbound lanes of W. National Avenue to Station 189NS+59, 83'RT where it turns and runs southeasterly to beyond the southerly project limits near W. National Avenue. This line will remain in place without adjustment.
- An underground gas line beginning beyond the westerly project limits near W. Lincoln Avenue and running easterly in the eastbound lanes of W. Lincoln Avenue to Station 45L+02, 19'RT where it turns and runs southeasterly to Station 201NS+93, 116'LT. From there it turns and runs easterly, crossing USH 45/ IH 894 at Station 202NS+00 to Station 202NS+18, 215'RT where it turns and runs northeasterly to Station 48L+23, 19'RT. From there it turns and runs easterly in the eastbound lanes of W. Lincoln Avenue to beyond the easterly project limits. This line will remain in place without adjustment.
- An underground gas line beginning beyond the westerly project limits near W. Orchard Street and running easterly along the south side of W. Orchard Street to Station 20TE+70, 4'RT where it turns and runs southerly along the west side of S. 100th Street to beyond the southerly project limits. This line will remain in place without adjustment.
- An underground gas main beginning beyond the westerly project limits and running easterly, crossing USH 45/ IH 894 on the Greenfield Avenue Bridge, to beyond the easterly project limits. This line will remain in place without adjustment.
- An underground gas main beginning in Greenfield Avenue and running northerly along the west side of S. 100th Street, crossing Schlinger Avenue at Station 526SCH+11, to Station 39TD+56, 39'LT where it turns and runs easterly to Station 39TD+59, 17'LT. From there it turns and runs northerly along the west side of S. 100th Street, crossing the Hank Aaron State Trail on the S. 100th Street Bridge to Station 44TD+08, 13'LT where it turns and runs westerly into the Zoo Maintenance Yard. This line will remain in place without adjustment.

- An underground gas main beginning beyond the westerly project limits near Schlinger Avenue and running easterly on the south side of Schlinger Avenue to Station 526SCH+11, 32'RT. This line will remain in place without adjustment.
- An underground gas line beginning at Station 525SCH+74, 29'RT and running northerly to Station 525SCH+74, 2'RT where it turns and runs easterly to Station 527SCH+17, 2'RT. From there it turns and runs southerly to Station 527SCH+17, 10'RT where it turns and runs easterly in the eastbound lanes of Schlinger Avenue to Station 529SCH+88, 9'RT. From there it turns and runs southeasterly to Station 529SCH+98, 18' where it turns and runs easterly along the south side of Schlinger Avenue to beyond the easterly project limits. This line will remain in place without adjustment.
- An underground gas line beginning at Station 532SCH+62, 18'RT and running southerly in the southbound lanes of S. 98th Street to beyond the southerly project limits near S. 98th Street. This line will remain in place without adjustment.
- An underground gas line beginning beyond the southerly project limits near N. 97th Street and running northerly along the west right of way of N. 97th Street to Station 48TF+03, 20'LT where it turns and runs easterly, crossing USH 45 at Station 332NS+57, to Station 48TRN+24, 62'RT. This line will remain in place without adjustment.
- An underground gas line beginning beyond the southerly project limits near N. 95th Street and running northerly along the east right of way of N. 95th Street to Station 32WX+78, 39'RT where it turns and runs easterly along the south side of Wisconsin Avenue to beyond the easterly project limits. This line will remain in place without adjustment.
- An underground gas line beginning beyond the westerly project limits near Wisconsin Avenue and running easterly in the westbound lanes of Wisconsin Avenue to Station 21WX+92, 22'LT where it turns and runs northerly to Station 21WX+92, 41'LT. From there it turns and runs easterly to Station 22WX+45, 41'LT where it turns and runs southerly to Station 22WX+45, 5'RT. From there it turns and runs easterly in the eastbound lanes of Wisconsin Avenue to Station 25WX+20, 5'RT. From there it turns and runs southerly to Station 48TF+16, 10'LT where it turns and runs easterly, crossing USH 45 at Station 332NS+68, to an alley east of N. 95th Street to Station 35WX+90, 170'RT. From there it turns and runs northerly along the west side of S. 94th Street to Station 35WX+87, 35'RT where it turns and runs westerly to Station 34WX+73, 35'RT. From there it turns and runs northerly to Station 34WX+73, 64'LT where it turns and runs northwesterly to a gas regulation station at Station 34WX+23, 69'LT. This line will remain in place without adjustment.
- An underground gas line beginning beyond the westerly project limits near Wisconsin Avenue and running easterly along the south side of Wisconsin Avenue to Station 24WX+56, 30'RT. This line will remain in place without adjustment.
- An underground gas line beginning at Station 22WX+45, 41'LT and running northerly to Station 22WX+46, 55'LT where it turns and runs westerly along the north side of Wisconsin Avenue to beyond the westerly project limits. This line will remain in place without adjustment.

- An underground gas line beginning at Station 22WX+00, 30'RT and running southerly in the southbound lanes of N. 98th Street to beyond the southerly project limits. This line will remain in place without adjustment.
- An underground gas line beginning at Station 34WX+05, 37' RT and running northerly, crossing Wisconsin Avenue 34WX+05, to a gas regulation station at Station 34WX+23, 69'LT. This line will remain in place without adjustment.
- An underground gas line beginning at a gas regulation station at Station 34WX+23, 69'LT and running easterly along the north right of way of Wisconsin Avenue to beyond the easterly project limits. This line will remain in place without adjustment.
- An underground gas line beginning at Station 34WX+73, 12'LT and running easterly in the median of Wisconsin Avenue to beyond the easterly project limits. This line will remain in place without adjustment.
- An underground gas line beginning beyond the southerly project limits near S. Curtis Road and running northerly in the southbound lanes of S. Curtis Road to Station 14CT+98, 21'LT where it turns and runs westerly along the north side of W. Fairview Avenue to beyond the westerly project limits near W. Fairview Avenue. This line will remain in place without adjustment.
- An underground gas line beginning at Station 10CT+91, 20'LT and running easterly along the south side of W. Fairview Avenue to Station 20FV+05, 19'RT. This line will remain in place without adjustment.
- An underground gas line beginning beyond the southerly project limits near the Hank Aaron State Trail and running northerly, crossing IH 94 at Station 156EW+80, to beyond the northerly project limits. This line will remain in place without adjustment.

We Energies - Gas also has abandoned facilities within the project limits in the following locations:

- An underground gas line beginning at Station 525SCH+70, 28'RT and running easterly along the south side of Schlinger Avenue to Station 526SCH+83, 31'RT where it turns and runs northerly to Station 526SCH+84, 10'RT. From there it turns and runs easterly to Station 527SCH+17, 10'RT.
- A 24-inch underground gas line beginning beyond the southerly project limits near the Hank Aaron State Trail and running northerly, crossing IH 94 at Station 156EW+26, to beyond the northerly project limits. Portions of this line may have been encountered and/or removed as part of the Zoo Interchange - Phase 1 project.
- An underground gas line beginning beyond the southerly project limits near IH 94 and running northerly to the Zoo Maintenance Tunnel at Station 171EW+46, 57'RT and continues to the north side of the Zoo Maintenance Tunnel at Station 171+74, 105'LT to beyond the northerly project limits.
- An underground gas main beginning at Station 42TD+50 and running northerly through the Zoo Interchange Core to approximately the SW Ramp. Portions of this line may have been encountered and/or removed as part of the Zoo Interchange - Phase 1 project.

- An underground gas line beginning beyond the southerly project limits near N. 97th Street and running northerly along the west right of way of N. 97th Street to Station 25WX+04, 27'RT where it turns and runs westerly along the south side of Wisconsin Avenue to Station 24WX+68, 29'RT.
- An underground gas line beginning at Station 21WX+93, 21'LT and running easterly in the median of Wisconsin Avenue to Station 334NS+53 where it turns and runs northeasterly to Station 334NS+95, 38'RT. From there it turns and runs easterly to Station 31WX+44, 60'LT where it turns and runs southeasterly to Station 31WX+78, 18'LT. From there it turns and runs easterly in the westbound lanes of Wisconsin Avenue to Station 35WX+11, 21'LT. Portions of this line may have been encountered and/or removed as part of the Zoo Interchange - Phase 1 project.
- An underground gas line beginning at Station 22WX+46, 55'LT and running easterly along the north side of Wisconsin Avenue to Station 25WX+75, 70'LT where it turns and runs southeasterly to Station 26WX+02, 49'LT. From there it turns and runs easterly to Station 344NS+80, 25'RT. Portions of this line may have been encountered and/or removed as part of the Zoo Interchange - Phase 1 project.
- An underground gas line beginning at Station 31WX+76, 21'LT and running northeasterly to Station 32WX+05, 54'LT where it turns and runs easterly along the north side of Wisconsin Avenue to Station 35WX+12, 51'LT.
- An underground gas line beginning at Station 48TRN+12, 62'RT and running northerly along the east side of N. 95th Street to Station 32WX+70, 34'LT where it turns and runs easterly in the westbound lanes of Wisconsin Avenue to Station 33WX+81, 35'LT. From there it turns and runs northeasterly to an existing gas regulation station to remain at Station 34WX+23, 69'LT.
- An underground gas line beginning at Station 32WX+72, 33'RT and running easterly along the south side of Wisconsin Avenue to Station 34WX+04, 31'RT.
- An underground gas line beginning at Station 33WX+93, 22'LT and running northeasterly to an existing gas regulation station to remain at Station 34WX+23, 69'LT.

Additionally, We Energies will remove abandoned gas main in conflict with proposed construction in locations where the gas main coating may contain hazardous material. The removal of such abandoned gas main will occur during construction. Contact Paul Osmanski (414-944-5796) of We Energies 10 days prior to any activity that will expose the existing gas main to coordinate removal activities.

Contact Erich Wuestenhagen (414-651-3948 cell) of We Energies 7 days in advance to coordinate locations and any excavation near their facilities.

**West Allis, City of - Lighting** has existing lighting facilities within the project limits in the following locations:

- A line of light poles and overhead wires beginning beyond the southerly project limits at S. 100th Street and running northerly along the east side of S. 100th Street to a pole at Station 246NS+30, 155'LT where it turns and runs northwesterly to a

pole on the west side of S. 100th Street at Station 247NS+45, 185'LT. From there the line runs northeasterly to a pole at Station 248NS+28, 163'LT and then turns and runs westerly along the south side of W. Orchard Street to beyond the project limits. Reconstruct, remove, abandon and leave in place the lighting facilities as shown in the plans. The City of West Allis will disconnect existing wiring and reconnect new wiring associated with these facilities.

- Light poles and cables beginning beyond the project limits at S. 100th Street and running northerly along the east side of S. 100th Street to beyond the project limits. Relocate, reconstruct, remove, abandon and leave in place the lighting facilities as shown in the plans.
- Light poles and cables beginning beyond the westerly project limits and running easterly along W. Schlinger Avenue to beyond the easterly project limits. Relocate, reconstruct, remove, abandon and leave in place these lighting facilities as shown in the plans.
- Underground lighting cable beginning beyond the southerly project limits and running northerly along the west side of S. Curtis Road, crossing IH 94 at Station 111EW+81, and continuing northerly to Station 111EW+86, 137'LT where it turns and runs easterly across S. Curtis Road to a pedestal at Station 113EW+22, 126'LT. This line will remain in place without adjustment.
- Light poles and underground cable beginning at a pedestal at Station 113EW+22, 126'LT and running westerly to the east curb line of W. Curtis Road where it turns and runs southerly along the east curb line, crossing IH 94 at Station 112EW+66, and continuing southerly to Station 113EW+00, 154'RT where it turns and runs southeasterly and easterly along the north curb line of W. Fairview Street to Station 127EW+31, 152'RT. From there it turns and runs southeasterly and southerly along the east curb line of S. 116th Street to beyond the southerly project limits. These facilities will remain in place without adjustments.

Contact Peter Daniels (414-302-8374 office) of the City of West Allis 7 days in advance to coordinate locations, construction and any excavation near their facilities.

**West Allis, City of - Sanitary** has existing sanitary sewer facilities within the project limits in the following locations:

- An underground sanitary sewer beginning at a City of Wauwatosa sanitary manhole at Station 125EW+93, 152'RT and running westerly along the south side of W. Fairview Avenue to a manhole at Station 117EW+38, 172'RT. This line will remain in place without adjustment.
- An underground sanitary sewer beginning beyond the easterly project limits near Schlinger Avenue and running westerly in the westbound lanes of Schlinger Avenue to a manhole at Station 532SCH+76, 13'LT where it turns and runs southerly in the northbound lanes of S. 98th Street to beyond the southerly project limits. This line will remain in place without adjustment.

- An underground sanitary sewer beginning beyond the westerly project limits near W. Bungalow Parkway and running easterly in the center of W. Bungalow Parkway to a manhole at Station 9BU+66, 2'LT where it turns and runs northerly along the west right of way of S. 100th Street to a manhole at Station 42TD+00, 69'LT. This line will remain in place without adjustment. Adjust the manholes as shown in the plans.
- An underground sanitary sewer beginning at a manhole at Station 779GD+24, 24'LT and running southerly along the center of S. 100th Street to a manhole at Station 773GD+65, 34'LT where it turns and runs westerly in the westbound lanes of W. Walker Street to beyond the westerly project limits. This line will remain in place without adjustment. Adjust the manholes as shown in the plans.
- An underground sanitary sewer beginning at a manhole at Station 12TD+62, 35'RT and running northerly to beyond the northerly project limits near W. Madison Place. This line will remain in place without adjustment.
- An underground sanitary sewer beginning at a manhole at Station 19TE+78, 1'LT and running southerly in S. 100th Street beyond the southerly project limits at S. 100th Street. This line will remain in place without adjustment.
- An underground sanitary sewer beginning at a manhole at Station 230NS+40, 76'LT and running northwesterly to beyond the westerly project limits near S. 100th Street at the Union Pacific Railroad. This line will remain in place without adjustment.

City of West Allis - Sewer also has abandoned facilities within the project limits in the following locations:

- An underground sanitary sewer beginning at a manhole at Station 779GD+99, 1'RT and running southerly along the west right of way of USH 45/ IH 894 to a manhole at Station 773GD+64, 9'LT where it turns and runs westerly to a manhole at Station 773GD+65, 34'LT.
- An underground sanitary sewer beginning at a manhole at Station 749GC+45, 21'LT and running southerly along the west right of way of USH 45/ IH 894 to a manhole at Station 16TE+74, 7'RT.
- An underground sanitary sewer beginning at a manhole at Station 230NS+40, 76'LT and running northerly along the west side of USH 45/ IH 894 to a manhole at approximately Station 235NS+20, 125'LT.

Contact Joe Burtch (414-302-8379 office) of the City of West Allis 7 days in advance to coordinate locations and any excavation near their facilities.

**West Allis, City of - Water** has existing underground water facilities within the project limits in the following locations:

- An underground water main beginning beyond the westerly project limits near Lincoln Avenue and running easterly in the westbound lanes of Lincoln Avenue to Station 45L+42, 31'LT where it turns and runs northeasterly to Station 45L+77, 76'LT. From there it turns and runs easterly, crossing USH 45/ IH 894 at Station

203NS+45, and continues easterly to Station 49L+37, 61'LT where it turns and runs southeasterly to Station 49L+59, 31'LT. From there it turns and runs easterly in the westbound lanes of Lincoln Avenue to beyond the easterly project limits. Relocate, reconstruct, remove, abandon and leave in place these facilities as shown in the plans.

- An underground water main beginning beyond the westerly project limits near USH 45/ IH 894 and running easterly to Station 214NS+08, 186'LT where it turns and runs northeasterly to Station 215NS+82, 135'LT. From there it turns and runs easterly, crossing USH 45/ IH 894 at Station 216NS+04, and continues easterly to beyond the project limits. Relocate, reconstruct, remove, abandon and leave in place these facilities as shown in the plans.
- A 24-inch underground transmission water main beginning beyond the westerly project limits near the Union Pacific Railroad corridor and running easterly, crossing USH 45/ IH 894 at Station 231NS+55, and continuing easterly to beyond the project limits. This line will remain in place without adjustment.
- An underground water main beginning at Station 231NS+31, 192'LT and running northerly along S. 100th Street to Station 20TE+84 and then continuing northerly along the west right of way of USH 45/ IH 894 to connect to a water main in the eastbound lanes of Greenfield Avenue. This line will remain in place without adjustment.
- An underground water main beginning at Station 12TD+67, 33'RT and running easterly, crossing USH 45/ IH 894 at Station 255NS+22, and continuing easterly to Station 755GA+11, 34'LT. From there it turns and runs southerly to connect to a water main in the westbound lanes of Greenfield Avenue. This line will remain in place without adjustment.
- An underground water main beginning in Greenfield Avenue and running northerly in the southbound lanes of S. 100th Street, crossing Schlinger Avenue at Station 526SCH+34, and continuing northerly to Station 41TD+96, 18'LT. This line will remain in place without adjustment. Relocate the hydrant at Station 36TD+90, 24'LT as shown in the plans.
- An underground water main beginning at Station 39TD+35, 9'LT and running westerly along the center of W. Bungalow Parkway to beyond the westerly project limits. This line will remain in place without adjustment.
- An underground water main beginning beyond the westerly project limits near Schlinger Avenue and running easterly along the center of Schlinger Avenue to Station 525SCH+82, 2'LT where it turns and runs southeasterly to Station 526SCH+04, 22'RT. From there it turns and runs easterly along the south side of Schlinger Avenue, crossing S. 100th Street at Station 37TD+18, and continues easterly to beyond the project limits. This line will remain in place without adjustment. Relocate the hydrant at Station 529SCH+89, 25'RT as shown in the plans.
- An underground water main beginning at Station 532SCH+68, 23'RT and running southerly in S. 98th Street to beyond the southerly project limits. This line will remain in place without adjustment.

- An underground water main beginning beyond the southerly project limits near S. 116th Street and running northerly along the west side of S. 116th Street to Station 127EW+06, 166'RT where it turns and runs westerly along the south side of W. Fairview Avenue to Station 121EW+53, 132'RT. This line will remain in place without adjustment.
- An underground water main beginning beyond the southerly project limits near Curtis Road and running northerly along the east side of Curtis Road, crossing IH 94 at Station 112EW+65, and continuing northerly to Station 112EW+68 136'LT where it turns and runs westerly along the south side of W. Fairview Avenue to beyond the westerly project limits. This line will remain in place without adjustment.
- An underground water main beginning at Station 112EW+88, 195'RT and running easterly along the south side of W. Fairview Avenue to Station 117EW+67, 190'RT. This line will remain in place without adjustment.

The City of West Allis also has an abandoned water main beginning at Station 16TE+89 and running northerly in the center of S. 100th Street and continues northerly along the west side of USH 45 / IH 894 to the median of Greenfield Avenue.

Contact Joe Burtch (414-302-8379 office) of the City of West Allis 7 days in advance to coordinate locations and any excavation near their facilities.

**West Shore Pipeline** has an existing underground petroleum pipeline beginning beyond the southerly project limits and running northeasterly, crossing Underwood Creek and continuing northeasterly to Station 101EW+64, 318'RT. From there the line runs northwesterly along the east side of Underwood Creek, crossing IH 94 at Station 101EW+42, and continuing northwesterly to beyond the project limits. This pipeline will remain in place without adjustment. Contact Aric Aufdermauer (414-391-8102) of Buckeye Partners L.P. 48 hours before any excavation or other construction activities within 25 feet of this facility.

Contact Aric Aufdermauer (414-391-8102) of Buckeye Partners L.P. 7 days in advance to coordinate locations and any excavation near this facility.

**Windstream** has an existing underground communications line in We Energies conduit beginning at the 96th Street Substation in the northeast quadrant of the Zoo Interchange and running southerly in and below an existing utility tunnel, crossing IH 94 at Station 201EW+00, and continuing southerly to the center of W. Adler Street where it turns and runs southwesterly along the east right of way of the Zoo Interchange to Station 783GE+76, 69'RT. From there it turns and runs southeasterly and southerly along the east right of way of USH 45/ IH 894, crossing the Hank Aaron State Trail at Station 181HA+66, and continuing southerly, crossing Schlinger Avenue at Station 531SCH+58. From there it continues southerly, crossing Greenfield Avenue at Station 518G+71, and continues southerly to Station 231NS+69, 180'RT. From there it turns and runs southwesterly and westerly, crossing IH 894/ USH 45 at Station 230NS+61 in the Union Pacific Railroad corridor, and continues westerly to beyond the project limits.

Windstream has an abandoned communication facility in an abandoned We Energies conduit beginning at the 96th Street Substation in the northeast quadrant of the Zoo Interchange and running southerly in abandoned portions of an existing utility tunnel, crossing IH 94 at Station 201EW+00, and continuing southerly to Adler Street. From there it runs westerly to Station 985AD+28, 6'LT where it turns and runs southwesterly and southerly, crossing the Hank Aaron State Trail at Station 182+00, and continuing southerly, crossing Schlinger Avenue at Station 530SCH+14, and continuing southerly, crossing Greenfield Avenue at Station 518G+01, and continuing southerly to Station 740GB+00, 39'RT.

Contact Jim Kostuch (262-792-7938 office) of Windstream 7 days in advance to coordinate locations and any excavation near their facilities.

**WisDOT – Lighting** has existing lighting facilities along the medians of IH 94, IH 894 and USH 45 throughout the project limits and along the ramps at the Lincoln, Greenfield Bluemound and STH 100 interchanges. Relocate, reconstruct, remove, abandon and leave in place these facilities as shown in the plans.

Contact Eric Perea (262-574-5422 office/414-750-0935 cell) of WisDOT - Lighting 7 days in advance to coordinate locations and any excavation near their facilities.

**WisDOT – Signals** has existing signal facilities at the IH 94/ STH 100 interchange, at the Lincoln Avenue/ IH 894/ USH 45 interchange, at the Greenfield Avenue/ IH 894/ USH 45 interchange and at the Bluemound Road/ USH 45 interchange. These facilities will remain in place without adjustment. Install new signal bases, conduit and Adaptive Signal Equipment at the City of Milwaukee signals at Wisconsin Avenue/ N. 95th Street intersection as shown in the plans.

Contact WisDOT Traffic Signal Operations (414-750-2605) 7 days in advance to coordinate construction.

**WisDOT STOC** has existing communication facilities located throughout the project limits. Relocate, reconstruct, remove, abandon and leave in place these facilities as shown in the plans.

Contact Jeff Madson (414-225-3723) of WisDOT - STOC 7 days in advance to coordinate locations and any excavation near their facilities.

**1060-34-82**

**American Transmission Company** has existing overhead 138kV electric transmission lines adjacent to and east of the project limits, throughout project limits. These lines will remain in place without adjustment.

Coordinate any grading or construction in the vicinity of these lines with ATC. Due to outage constraints for the multi-state electric grid, these transmission lines cannot be de-energized during construction. Use caution when operating overhead equipment in this

area and maintain OSHA safe working clearance to the overhead conductors at all times. Notify ATC 48 hours before beginning any work within or around overhead electric transmission lines.

Contact Ivan Keller (262-422-0326) of American Transmission Company 7 days in advance to coordinate locations and any excavation near their facilities.

**AT&T Corporation** has an existing underground communications duct package beginning beyond the southerly project limits and running northerly along the east IH 894 fence line to beyond the northerly project limits. This line will remain in place without adjustment.

Contact Ken Nine (574-904-6336 cell) of JMC Engineers & Associates, Inc. 7 days in advance to coordinate locations and any excavation near their facilities.

**AT&T Wisconsin** has an existing underground communications line beginning beyond the easterly project limits and running westerly, crossing IH 894 approximately 175 feet north of the centerline of Cleveland Avenue, and continuing westerly to beyond the project limits. This line will remain in place without adjustment.

Contact Jay Bulanek (414-535-7407 office) of AT&T Wisconsin 7 days in advance to coordinate locations and any excavation near their facilities.

**Time Warner Cable** has an existing overhead communications line beginning at a We Energies pole at the east fence line of IH 894 approximately 165 feet north of the centerline of Cleveland Avenue and running westerly across IH 894 to a We Energies pole at the west fence line of IH 894 approximately 185 feet north of the centerline of Cleveland Avenue. This is line will remain in place without adjustment.

Contact Steve Cramer (414-277-4045 office) of Time Warner Cable 7 days in advance to coordinate locations and any excavation near their facilities.

**MMSD** has an abandoned sanitary sewer beginning beyond the easterly project limits running westerly, crossing IH 894 at approximately Station 182NS+62, to beyond the westerly project limits.

Contact Debra Jensen (414-225-2143) of MMSD 7 days in advance to coordinate locations and any excavation near their facilities.

**West Allis/West Milwaukee School District** has an existing underground fiber optic communications line beginning beyond the easterly project limits and running westerly, crossing IH 894 at Station 164NS+60 and continuing westerly to beyond the project limits. This line will remain in place without adjustment.

Contact Bruce Rowell (920-826-4600, Ext. 101) of Access Engineering, LLC 7 days in advance to coordinate locations and any excavation near their facilities.

**We Energies - Electric** has existing overhead and underground electric facilities within the project area in the following locations:

- An existing overhead electric line beginning at a pole at the east fence line of IH 894 approximately 165 feet north of the centerline of Cleveland Avenue and running westerly across IH 894 to a pole at the west fence line of IH 894 approximately 185 feet north of the centerline of Cleveland Avenue. This line will remain in place without adjustment.
- An existing overhead electric line beginning beyond the easterly project limits and running westerly, crossing IH 894 approximately 165 feet south of the centerline of Cleveland Avenue, and continuing westerly to beyond the project limits. This line will remain in place without adjustment.
- An existing overhead electric line beginning beyond the easterly project limits and running westerly, crossing IH 894 approximately 55 feet south of the centerline of the Dakota Street Pedestrian Bridge over IH 894, and continuing westerly to beyond the project limits. This line will remain in place without adjustment.
- An existing underground electric line beginning at a WisDOT FTMS cabinet located near the northeast corner of the Cleveland Avenue Bridge over IH 894 and running northeasterly to a pole beyond the project limits. This line will remain in place without adjustment.
- An existing underground electric line beginning at a pole at the west fence line of IH 894 approximately 185 feet north of the centerline of Cleveland Avenue and running southerly and ending at a WisDOT FTMS cabinet near the northwest corner of the Cleveland Avenue Bridge over IH 894. This line will remain in place without adjustment.
- An existing underground electric line beginning at a transformer located at Station 178NS+70, 110'LT and running westerly to beyond the project limits. This line will remain in place without adjustment.
- An existing underground electric line beginning at a pole at Station 164NS+32, 158' LT running easterly under S. 100th Street to a WisDOT FTMS cabinet at Station 164NS+08, 102'LT. This line will remain in place without adjustment.

Contact Jason Chapin (414-944-5575 office / 414-587-0655 cell) of We Energies 7 days in advance to coordinate locations and any excavation near their facilities.

**We Energies - Gas** has an existing underground gas main beginning beyond the easterly project limits and running westerly, crossing IH 894 approximately 26 feet south of the centerline of the Dakota Street Pedestrian Bridge over IH 894, and continuing westerly to beyond the project limits. This line will remain in place without adjustment.

Contact Erich Wuestenhagen (414-651-3948) of We Energies 7 days in advance to coordinate locations and any excavation near their facilities.

**West Allis, City of - Lighting** has existing overhead lighting facilities along both sides of Cleveland Avenue and on the Cleveland Avenue Bridge over IH 894. These facilities will remain in place without adjustment.

Contact Peter Daniels (414-302-8374 office) of City of West Allis 7 days in advance to coordinate locations and any excavation near their facilities.

**West Allis, City of - Sewer** has an existing underground sanitary sewer beginning beyond the easterly project limits and running westerly, crossing IH 894 approximately 51 feet south of the centerline of the Dakota Street Pedestrian Bridge over IH 894, and continuing westerly to beyond the project limits. This line will remain in place without adjustment.

Contact Joe Burtch (414-302-8379 office) of City of West Allis 7 days in advance to coordinate locations and any excavation near their facilities.

**West Allis, City of - Water** has an existing underground water main beginning beyond the easterly project limits and running westerly, crossing IH 894 approximately 81 feet north of the centerline of Cleveland Avenue, and continuing westerly to beyond the project limits. This line will remain in place without adjustment.

City of West Allis - Water also has an abandoned water main beginning beyond the easterly project limits running westerly, crossing IH 894 approximately 18 feet south of the centerline of the Dakota Street Pedestrian Bridge over IH 894, and continuing westerly to beyond the project limits.

Contact Joe Burtch (414-302-8379 office) of City of West Allis 7 days in advance to coordinate locations and any excavation near their facilities.

**WisDOT - Lighting** has existing lighting facilities within the project area in the following locations:

- Existing light poles and underground electric lines are located within the median of IH 894 throughout the project limits. This line will remain in place without adjustment.
- An existing underground electric line beginning at a transformer located at Station 178NS+70, 110’LT and running southeasterly to a handhole at Station 178NS+45, 72’LT. From there the line runs easterly, crossing IH 894 at Station 178NS+43 and continuing easterly to Station 178NS+40, 66’RT. From there the line runs northeasterly and northerly and interconnects light poles along the IH 894 northbound exit ramp to National Avenue. Adjust portions of this line as necessary.
- Existing light poles and underground electric lines are located along the northbound IH 894 entrance ramp from Oklahoma Avenue. Lighting facilities along this entrance ramp are being adjusted and relocated under contract ID 1060-35-93.

Contact Eric Perea (262-574-5422 office/414-750-0935 cell) of WisDOT - Lighting 7 days in advance to coordinate locations, construction activities and any excavation near their facilities.

**WisDOT - STOC** has existing FTMS facilities within the project area at the following locations:

- An existing underground communications line beginning beyond the southerly project limits and running northerly along the easterly outside shoulder of the northbound IH 894 entrance ramp from Oklahoma Avenue, to connect to ramp metering facilities at the north end of the ramp near Station 255ALN+00. These facilities are being adjusted and relocated under contract ID 1060-35-93.
- An existing underground communications line beginning beyond the southerly project limits and running northerly, crossing the northbound entrance ramp from Oklahoma Avenue at the north end of the ramp and then continuing northerly, in a location varying between 8 to 26 feet east of the IH 894 pavement, to a handhole at Station 175NS+32, 69'RT. From there the line continues northerly to a handhole at Station 176NS+78, 69'RT and then continues northerly along IH 894 and along the northbound exit ramp to National Avenue, in a location approximately 8 feet east of the pavement, to beyond the northerly project limits. The conduit will be relocated prior to construction. Remove this communications line as shown in the plans.
- An existing underground communications line beginning at a handhole at Station 175NS+32, 69'RT and running westerly, crossing IH 894 at Station 175NS+32 and continuing westerly to a handhole at Station 175NS+32, 67'LT. From there the line runs southerly, approximately 8 feet west of the westerly IH 894 pavement, to a handhole at Station 164NS+07, 70'LT where it turns and runs west to a WisDOT FTMS cabinet at Station 164NS+08, 102' LT. This line will remain in place without adjustment.
- An existing underground communications line beginning at a handhole at Station 176NS+78, 69'RT and running easterly to a camera near the northeast corner of the Cleveland Avenue Bridge over IH 894. Remove this line as shown in the plans.
- An underground communications line beginning at a handhole at Station 176NS+76, 69'RT and running easterly to end at a WisDOT cabinet at Station 176NS+96, 105' RT. This line will remain in place without adjustment.

Contact Jeff Madson (414-225-3723) of WisDOT - STOC 7 days in advance to coordinate locations and any excavation near their facilities.

**1060-43-81**

**AT&T Corporation** has an existing underground communications package beginning beyond the easterly project limits and running southwesterly along the southerly right of way of IH 94 to Station 95EW+71, 140'RT where it turns and runs northwesterly, crossing IH 94 at Station 95EW+71, and continuing northwesterly to Station 95EW+71, 148'LT. From there it turns and runs southwesterly along the northerly right of way of IH 94 to beyond the westerly project limits. This line will remain in place without adjustment.

AT&T Corporation also has an abandoned underground communications package beginning beyond the easterly project limits and running southwesterly along the northerly fence line of IH 94 to Station 95EW+71, 148'LT.

Contact Ken Nine (574-904-6336 cell) of JMC Engineers & Associates, Inc. 7 days in advance to coordinate locations and any excavation near their facilities.

**AT&T Wisconsin** has an existing underground communications line beginning beyond the southerly project limits and running northerly in the southbound lane west of the median of S. Curtis Road to beyond the northerly project limits. This line will remain in place without adjustment.

Contact Jay Bulanek (414-535-7407 office) of AT&T Wisconsin 7 days in advance to coordinate locations and any excavation near their facilities.

**Milwaukee Metropolitan Sewerage District (MMSD)** has an existing underground sanitary sewer beginning beyond the southerly project limits and running northerly along the east side of Underwood Creek, crossing under IH 94 at Station 101EW+73, and continuing northerly to beyond the project limits. This line will remain in place without adjustment.

Contact Debra Jensen (414-225-2143) of MMSD 7 days in advance to coordinate locations and any excavation near their facilities.

**Time Warner Cable** has an existing underground communications line beginning beyond the southerly project limits and running northerly along the east curb line of S. Curtis Road to beyond the northerly project limits of S. Curtis Road. This line will remain in place without adjustment.

Contact Steve Cramer (414-277-4045) of Time Warner Cable 7 days in advance to coordinate locations and any excavation near their facilities.

**We Energies – Electric** has an existing overhead electric line beginning beyond the southerly project limits and running northerly to a pole at Station 103EW+50, 151'RT. From there the line runs northerly, crossing IH 94 at Station 103EW+96, and continuing northerly to a pole at Station 104EW+42, 151'LT. From there the line continues northerly to beyond the project limits. This line will remain in place without adjustment.

Contact Erich Wuestenhagen (414-651-3948 cell) of We Energies 7 days in advance to coordinate locations and any excavation near their facilities.

**We Energies – Gas** has an existing underground gas line beginning beyond the southerly project limits and running northerly in the southbound lanes of S. Curtis Road to beyond the northerly project limits. This line will remain in place without adjustment.

Contact Erich Wuestenhagen (414-651-3948 cell) of We Energies 7 days in advance to coordinate locations and any excavation near their facilities.

**West Allis, City of - Lighting** has existing lighting facilities within the project limits in the following locations:

- An existing underground lighting line beginning at a cabinet at Station 113EW+22, 126'LT and running westerly across S. Curtis Road to a light pole at Station 112EW+27, 136'LT and continuing westerly to Station 111EW+86, 137'LT. From there the line runs southerly along the west curb line of S. Curtis Road, crossing IH 94 at Station 111EW+81, and continuing Southerly to beyond the project limits. This line will remain in place without adjustment.
- An existing underground lighting line beginning at a pedestal at Station 113EW+22, 126'LT and running westerly to Station 112EW+63, 133' LT where it turns and runs southerly along the east curb line of S. Curtis Road, crossing IH 94 at Station 112EW+66, and continuing southerly to Station 112EW+69, 130'RT. From there the line continues southeasterly to Station 113EW+00, 154'RT and then runs easterly along the north curb line of W. Fairview Avenue to beyond the easterly project limits. This line will remain in place without adjustment.
- An existing underground lighting line beginning at Station 112EW+69, 130'RT and running westerly across S. Curtis Avenue and ending at a light pole in the median of S. Curtis Avenue. This line will remain in place without adjustment.

Contact Peter Daniels (414-302-8374 office) of City of West Allis - Lighting 7 days in advance to coordinate locations and any excavation near their facilities.

**West Allis, City of - Water** has an existing underground water main beginning beyond the southerly project limits and running northerly along the east curb line of S. Curtis Road to Station 112EW+68 136'LT where it turns and runs westerly along the south side of W. Fairview Avenue to beyond the westerly project limits. This line will remain in place without adjustment.

Contact Joe Burtch (414-302-8379 office) of City of West Allis - Water 7 days in advance to coordinate locations and any excavation near their facilities.

**West Shore Pipeline** has an existing underground petroleum pipeline beginning beyond the southerly project limits and running northeasterly, crossing Underwood Creek and continuing northeasterly to Station 101EW+64, 318'RT. From there the line runs northwesterly along the east side of Underwood Creek, crossing IH 94 at Station 101EW+42, and continuing northwesterly to beyond the project limits. This pipeline will remain in place without adjustment. Contact Aric Aufdermauer (414-391-8102) of Buckeye Partners, Inc. 48 hours before any excavation or other construction activities within 25 feet of this facility.

Contact Aric Aufdermauer (414-391-8102) of Buckeye Partners, Inc. 7 days in advance to coordinate locations and any excavation near this facility.

**WisDOT – Lighting** has existing lighting facilities and running east-west in the median of IH 94 throughout the project area. These facilities will be abandoned, removed, left in place, and reconstructed as part of Construction ID 1060-33-81.

Contact Eric Perea (262-574-5422 office/414-750-0935 cell) of WisDOT - Lighting 7 days in advance to coordinate locations and any excavation near their facilities.

**WisDOT STOC** has existing communication facilities located throughout the project limits. These facilities will be abandoned, removed, left in place, and reconstructed as part of Construction ID 1060-33-81.

Contact Jeff Madson (414-225-3723) of WisDOT - STOC 7 days in advance to coordinate locations and any excavation near their facilities.

## 9. Other Contracts.

Coordinate your work in accordance to standard spec 105.5.

Modifications to the traffic control plan may be required by the engineer to be safe and consistent with adjacent work by others.

It is expected that routine maintenance by the city and county personnel may be required at certain times concurrently with the work being done under this contract.

The following contracts are anticipated to be under construction within the time period of this contract, unless otherwise indicated:

Contract ID 1060-33-80, Zoo Interchange Phase 1 reconstruction. The WisDOT contact is Mark Klipstein at (414) 750-1496; mark.klipstein@dot.wi.gov.

Contract ID 1060-33-82, IH 94 Auxiliary Lanes reconstruction from Moorland Road to Underwood Parkway. The WisDOT contact is Mark Klipstein at (414) 750-1496; mark.klipstein@dot.wi.gov.

Contract ID 1060-33-83, Zoo IC Pedestrian Bridge over USH 45 reconstruction. The WisDOT contact is Jay Obenberger at (414) 750-3259; jay.obenberger@dot.wi.gov.

Contract ID 1060-33-84, Zoo IC US45 WIS100 to Burleigh Street reconstruction. The WisDOT contact is Chris Zacharias at (262) 548-6716; christopher.zacharias@dot.wi.gov.

Contract ID 1060-33-96, Zoo IC – Advanced Signing Projects; various locations. The WisDOT contact is Christopher Hager at (414) 750-1487; christopher.hager@dot.wi.gov.

Contract ID 1060-34-84, Zoo IC Center Street Bridge reconstruction. The WisDOT contact is Chris Zacharias at (262) 548-6716; christopher.zacharias@dot.wi.gov.

Contract ID 1060-43-82, Elm Grove Road Bridge over IH94. The WisDOT contact is Joshua LeVeque at (414) 750-1468; joshua.leveque@dot.wi.gov.

Contract ID 1060-33-94, Zoo IC – Swan Boulevard and Discovery Parkway roundabout construction from USH 45 to Underwood Parkway. The WisDOT contact is Christopher Hager at (414) 750-1487; christopher.hager@dot.wi.gov.

Contract ID 1060-33-97, Zoo IC - Integrated Corridors 2 at various intersections in Milwaukee and Waukesha Counties. The WisDOT contact is Jay Obenberger at (414) 750-3259; jay.obenberger@dot.wi.gov.

Contract ID 1060-35-93, Zoo IC – 2015 TMP Projects at various intersections in Milwaukee County. The WisDOT contact is Jay Obenberger at (414) 750-3259; jay.obenberger@dot.wi.gov.

Contract ID 1100-20-60, USH 45 resurfacing from W. Burleigh Road to Good Hope Road. The WisDOT contact is Ken Kiepczynski at (414) 659-3055; Kenneth.Kiepczynski@dot.wi.gov.

Contract ID 1120-11-86, IH 41 Conversion State Line to Green Bay, Russell Road - SCL Dodge County Signing, USH 41, SE Region. Work under this contract is anticipated to be LET in either the 2015 or 2016 construction season. Work areas under contract 1120-11-86 fall within the physical limits of work under this contract. Coordinate activities in these areas with the 1120-11-86 contractor.

## 10. Railroad Insurance and Coordination – Canadian Pacific Railway.

### A Description

Comply with standard spec 107.17 for all work affecting Soo Line Railroad Company, d/b/a Canadian Pacific Railway Company property.

Although the Hank Aaron State Trail (HAST) is a Rails to Trails corridor with no existing tracks it is still considered an active line with the Soo Line Railroad Company d/b/a Canadian Pacific Railway Company being the underlying property owner. As a result railroad insurance is still required.

### A.1 Railroad Insurance Requirements

In addition to standard spec 107.26, provide railroad protective liability insurance coverage as specified in standard spec 107.17.3. Insurance is filed in the name of Soo Line Railroad Company, d/b/a Canadian Pacific Railway Company.

Notify evidence of the required coverage, and duration to Canadian Pacific Railway Company at Suite 9126, 120 South Sixth Street, Minneapolis, MN 55402, attention Edward Oom. Include the following information on the insurance document:

Project: 1060-33-81
Route Name: IH 94 and USH 45, Milwaukee County
West Allis Subdivision, I94 Milepost 92.60 and USH 45 MP 91.47
Hank Aaron State Trail (HAST)

**A.2 Work by Railroad**
The railroad will perform the work described in this section, except for work described in other special provisions and will be accomplished without cost to the contractor.

**A.3 Names and addresses of Railroad Representatives for Consultation and Coordination**
Contact Edward Oom, Manager of Public Works- US East Engineering, Suite 9126, 120 South Sixth Street, Minneapolis, MN 55402, TELEPHONE (630) 860-4975, FAX (630) 860-4170, Edward_Oom@cpr.ca, for consultation on railroad requirements during construction.

Amend standard spec 108.4 to include the railroad in the distribution of the initial bar chart, and monthly schedule updates. The bar chart shall specifically show work involving coordination with the railroad.

**A.4 Temporary Grade Crossing**
If a temporary grade crossing is desired, submit a written request to the railroad representative named in A.3 several weeks prior to the time needed. Approval is subject to the discretion of the railroad. The department has made no arrangements for a temporary grade crossing.

**A.5 Train Operation**
This is a Rails to Trails corridor so there is no train traffic.

## 11. Railroad Insurance and Coordination – Union Pacific Railroad.

**A Description**
Comply with standard spec 107.17 for all work affecting Union Pacific Railroad Company property and any existing tracks.

**A.1 Railroad Insurance Requirements**
In addition to standard spec 107.26, provide railroad protective liability insurance coverage as specified in standard spec 107.17.3. Insurance is filed in the name of Union Pacific Railroad Company.

Notify evidence of the required coverage, and duration to John Venice, Manager Special Projects – Industry and Public Projects Engineering Department, 101 North Wacker Drive, Suite 1920, Chicago, IL 60606, TELEPHONE (312) 777-2043, FAX (402) 233-2769, Email: jnvenice@up.com. Include the following information on the insurance document:

Project: 1060-33-81
Route Name: IH894, Milwaukee County
Crossing ID: 177 254F
Railroad Subdivision: Milwaukee Subdivision
Railroad Milepost: 88.45

**A.2 Work by Railroad**
The railroad will perform the work described in this section, except for work described in other special provisions and will be accomplished without cost to the contractor. Install and remove temporary construction crossing

**A.3 Names and addresses of Railroad Representatives for Consultation and Coordination**
Contact John Venice, Manager Special Projects – Industry and Public Projects Engineering Department, 101 North Wacker Drive, Suite 1920, Chicago, IL 60606, TELEPHONE (312) 777-2043, FAX (402) 233-2769, Email: jnvenice@up.com, for consultation on railroad requirements during construction.

Amend standard spec 108.4 to include the railroad in the distribution of the initial bar chart, and monthly schedule updates. The bar chart shall specifically show work involving coordination with the railroad.

**A.4 Temporary Grade Crossing**
The department has made arrangements for a temporary grade crossing to be installed by the railroad at a location deemed appropriate for both contractor needs and railroad requirements. Contact the railroad representative named in A.3 four weeks prior to the time it is desired to have the crossing installed. The railroad flagger will unlock the railroad lock at the start of each day that the contractor needs to use the crossing. The railroad flagger will lock the gate at the end of each day, or any time that the flagger leaves the job site when the contractor no longer needs flagging services.

**A.4.1 Work by Contractor**
Construct and remove crushed aggregate approaches up to the tracks. Approaches shall be constructed to maintain the existing drainage. Install crossing access gate along with temporary fencing to the railroad construction crossing. A flagman must be present at each gate at any time a gate is open and a crossing is used. The contractor is permitted to remove railroad timber utility poles that do not have any lines attached to them, as required to facilitate construction.

**A.5 Train Operation**
Approximately 20-25 through freight trains operate daily through the construction site. Through freight trains operate at up to 30 mph. In addition to through movements, there are switching movements at slower speeds.

**A.6 Temporary Clearances During Construction**

*Replace subparagraphs (3) 4.1 and (3) 4.2 of standard spec 107.17.1 with the following:*

- Provide 12 feet plus 1.5 inches (38 mm) per degree of track curvature, measured horizontally from the track center line.
- Provide 21 feet 6 inch, plus compensation for super-elevated track, measured vertically above the top of the highest rails.
-

**B Railroad Flagging**

Arrange with the railroad for the flagging of trains and safety of railroad operations if clearances specified in standard spec 107.17.1 are not maintained during construction operations. The following conditions may also warrant flagging:

- Cranes swinging or handling materials or equipment within 25 feet of the centerline of any track.
- Construction operations that are in proximity of power lines or railroad signal and communication lines, underground cables, fuel oil facilities or pipe lines and which might result in fire or damage to such facilities, danger to railroad operations or danger to the public in the transaction of business on railroad premises.
- Excavation, tunneling, blasting, pile driving, placing, or removing cofferdams or sheeting, or similar activities might cause the railroad's tracks or buildings to be undermined, heaved out of normal level, shifted out of alignment, or otherwise impaired.
- Bridge painting activities including rigging of falsework, scaffolding or similar activities within 25 feet of the centerline of any track.
- Deck removal activities within 25 feet of the centerline of any track.
- Pouring of bridge decks in spans over an operated track.
- At any other time in railroad representative's judgment, the contractor's work or operations constitute an intrusion into the track zone and create an extraordinary hazard to railroad traffic, and at any other time when flagging protection is necessary for safety to comply with the operating rules of the railroad.

Projects with concurrent activity may require more than one flagger. Each open access gate may require a flagger as determined by the railroad.

Projects with heavy contractor activity within 25 feet of the centerline of any track or unusual or heavy impact on railroad facilities will normally require a full-time flagger.

The department and railroad will monitor operations for compliance with the above flagging requirements. Violations may result in removal from railroad property until arrangements to adhere to the flagging requirements are satisfied. If the railroad imposes additional flagging requirements beyond the above flagging requirements due to the previous violations, the contractor shall bear all costs of the additional flagging requirements.

## C Flagging by Railroad– Railroad Does Not Pay Flagging Costs

### C.1 General

*Replace paragraph (3) of standard spec 107.17.1 with the following:*

Comply with the railroad's rules and regulations regarding operations on railroad right-of-way. If the railroad's chief engineering officer requires, arrange with the railroad to obtain the services of qualified railroad employees to protect railroad traffic through the work area. Bear the cost of these services and make payment directly to the railroad. Notify the appropriate railroad representative as listed in section A.3 above, in writing, at least 10 business days before starting work near a track. Provide the specific time planned to start the operations.

Note: Work that requires railroad flagging to occupy the work zone for longer than the normal eight-hour day will require 40 day written notice to the railroad.

### C.2 Rates – Union Pacific

The following rates, reimbursement provisions, and excluded conditions will be used to determine the contractor's cost of flagging:

> $600 daily rate for an eight-hour day (including wages, labor surcharges, lodging, vehicle and mileage expenses),
>
> $1,500 "Rest Time" or nightly rate for weekday overnight work for an eight-hour day (including wages, labor surcharges, lodging, vehicle and mileage expenses)
>
> $900 daily rate for an eight-hour day on Saturdays, Sundays, or holidays (including wages, labor surcharges, lodging, vehicle and mileage expenses)
>
> $1,500 "Rest Time" or nightly rate for weekend overnight work for an eight-hour day (including wages, labor surcharges, lodging, vehicle and mileage expenses)
>
> $100 per hour overtime rate for all time worked before or after the regular assigned eight hours on any day, or for a minimum three hour call on Saturdays, Sundays, or Holidays.

The flagger is required to set flags each day in advance of the contractor commencing work that will require flagging. The flagger must also remove the flags each day after the completion of work that required flagging. Any time worked before or after the minimum eight-hour flagging day to set or remove flags will be billed at the overtime rate. The contractor is responsible for knowing the requirements of the railroad for arranging and terminating flagging services and for the associated costs of those services.

### C.3 Reimbursement Provisions

The actual cost for flagging will be billed by the railroad. After the completion of the work requiring flagging protection as provided in section B above, the department will reimburse 50% of the cost of such services up to the rates provided above based on paid railroad invoices, except for the excluded conditions enumerated below. In the event actual flagging rates exceed the rates stated above, the department will reimburse 100% of the portion of the rate that is greater than the rates stated above.

### C.4 Excluded Conditions

The department will not reimburse any of the cost for additional flagging attributable to the following:

- Additional flagging requirements imposed by the railroad beyond the flagging requirements provided in subsection B above due to violations by the contractor.
- Temporary construction crossings arranged for by the contractor.

The contractor shall bear all costs of the additional flagging requirements for the excluded conditions.

### C.5 Payment for Flagging

Railroads may issue progressive bills. Notify the railroad when the work is completed and request a final bill from the railroad. The railroad will issue a final bill. Promptly pay railroad-flagging bills, less any charges that may be in dispute. The department will pay for flagging reimbursement under the Railroad Flagging Reimbursement special provision. The department will withhold flagging reimbursement until any disputed charges are resolved and the final bill is paid. No reimbursement for flagging will be made by the department if a violation of subsection B is documented.

## 12. Union Pacific Railroad Company Requirements.

### A General

In addition to requirements of the standard specifications and other articles within these special provisions, comply with the following requirements of Union Pacific Railroad Company (UPRR).

### B Request for Information / Clarification

All requests for information (RFI) involving work within UPRR right-of-way shall be in accordance to the procedures listed elsewhere in the special provisions. All RFIs to UPRR shall be submitted by the contractors. Allow four weeks for UPRR's review.

### C Plans / Specifications

Perform all Union Pacific Railroad Company (UPRR) work in accordance to the UPRR general conditions and specifications, adopted by the Union Pacific Engineering Department, latest edition. If there is a discrepancy or conflict between the referenced specification and the standard specification regarding UPRR work, the stricter requirement between the two specifications governs.

All changes to the plans or specifications are subject to the approval of UPRR. Submittal of all change requests directly to UPRR shall be by the contractor. Allow four weeks for UPRR review time.

**D Construction Submittals**

Designate one individual as the one point of contact to the RR on all RR submittals. Electronically submit all required construction submittals via email as pdf files along with any review comments to UPRR and copy the engineer. When submitting by email, keep the subject title consistent for a specific submittal throughout the UPRR approval process. For example:

> USH 45/IH 894 over UPRR Milwaukee Subdivision Milepost 88.45(_____)
> End subject title with type of submittal example (shoring plans).

All design submittals shall be stamped and signed by a professional engineer registered in the State of Wisconsin. A sufficient submittal review does not relieve the contractor of responsibility and liability.

The engineer and UPRR may review the submittals. If UPRR finds a submittal insufficient, make all required changes and resubmit it. A sufficient submittal review does not relieve the contractor of responsibility and liability of complying with the plans, specifications and the special provisions and for the structural integrity and proper functioning of the item that is the subject of the submittal. Allow four weeks for UPRR's review time of each submittal, including the original and any required resubmittals.

| Item | Description of Submittal Item | Notes |
|---|---|---|
| 1 | Shoring Design and Details | |
| 2 | Falsework Design and Details | |
| 3 | Drainage Design Provisions | |
| 4 | Erection Diagrams and Sequence | |
| 5 | Demolition Diagram and Sequence | |
| 6 | Shop Drawings | Steel and concrete members. |

Whenever work may affect the operations or safety of trains, the method of doing such work shall first be submitted to UPRRs designated representative for review. Review by UPRR shall not relieve the contractor from liability.

**E Infringement On Minimum Clearances**

Submit directly to UPRR requests for infringement upon the minimum horizontal or vertical clearance requirements of standard spec 107.17.1 (3) 4. Submit the requests to UPRR's designated representative. Allow four weeks for UPRR's review. Do not infringe upon the minimum clearances unless they are first approved in writing by UPRR.

**F Approval of Details**
Once approval is obtained by the UPRR, provide written approval to the engineer before undertaking such work. Allow four weeks for UPRR's review time for each submittal, including the original and any required resubmittals to obtain written approval.

**G Site Inspections By UPRR**
UPRR may make site inspections at any time. Provide a schedule of anticipated dates for the following activities to UPRR:

- Pre-construction conference
- Shoring
- Demolition
- Falsework
- Erection of superstructure
- Completion of the bridge structure

Update the schedule monthly, or more frequently if necessary, so that site visits may be scheduled.

**H Construction Excavations and Demolition**
Construction excavations shall meet OSHA and American Railway Engineering and Maintenance-of-Way Association (AREMA) requirements and the UPRR "Guidelines for Temporary Shoring" (GTS).

Demolition shall be done in accordance to Union Pacifics Guidelines for Preparation of a Bridge Demolition and Removal Plan for Structures over Railroad (GPBDRP)

The GTS and the GPBDRP are available for review from the Southeast Region's Railroad Coordinator at the department's Southeast Regional Office located at 141 NW Barstow Street, Waukesha, Wisconsin 53188.

## 13. Hauling Restrictions.

*Replace standard spec 107.2 with the following:*

Approved local street haul routes are shown on the Local Road Haul Routes Overview Plan.

If additional haul routes are needed that are not shown on the Local Road Haul Routes Overview Plan, or part of the state trunk highway system, present a proposed haul route plan detailing any additional haul routes five business days in advance of any proposed hauling to the department. Include the months, days of the week, time of day, number of trucks, types of trucks and maximum loads of trucks anticipated to accomplish the project work in the additional haul route submittal.

The department will review the submittal and either approve or provide a letter with comments and proposed revisions to the contractor within five business days of its receipt. If approved, the department will subsequently survey the existing condition of that haul route to establish a baseline for assessing damage that the contractor's hauling operations might cause.

At all times, conduct operations in a manner that will cause a minimum of disruption to traffic on existing roadways.

## 14. Information to Bidders, U.S. Army Corps of Engineers Section 404 Permit.

The department has obtained a U.S. Army Corps of Engineers Section 404 permit. Comply with the requirements of the permit in addition to requirements of the special provisions. A copy of the permit is available from the regional office by contacting Karla Leithoff at (262) 548-6709.
107-054 (20080901)

## 15. Environmental Protection, Aquatic Exotic Species Control.

Exotic invasive organisms such as VHS, zebra mussels, purple loosestrife, and Eurasian water milfoil are becoming more prolific in Wisconsin and pose adverse effects to waters of the state. Wisconsin State Statutes 30.07, "Transportation of Aquatic Plants and Animals; Placement of Objects in Navigable Waters", details the state law that requires the removal of aquatic plants and zebra mussels each time equipment is put into state waters.

At construction sites that involve navigable water or wetlands, use the follow cleaning procedures to minimize the chance of exotic invasive species infestation. Use these procedures for all equipment that comes in contact with waters of the state and/or infested water or potentially infested water in other states.

Ensure that all equipment that has been in contact with waters of the state, or with infested or potentially infested waters, has been decontaminated for aquatic plant materials and zebra mussels prior to being used in other waters of the state. Before using equipment on this project, thoroughly disinfect all equipment that has come into contact with potentially infested waters. Use the following inspection and removal procedures (guidelines from the Wisconsin Department of Natural Resources http://dnr.wi.gov/topic/fishing/documents/vhs/disinfection_protocols.pdf for disinfection:

1. Prior to leaving the contaminated site, wash machinery and ensure that the machinery is free of all soil and other substances that could possibly contain exotic invasive species;
2. Drain all water from boats, trailers, bilges, live wells, coolers, bait buckets, engine compartments, and any other area where water may be trapped;

3. Inspect boat hulls, propellers, trailers and other surfaces. Scrape off any attached mussels, remove any aquatic plant materials (fragments, stems, leaves, seeds, or roots), and dispose of removed mussels and plant materials in a garbage can prior to leaving the area or invested waters; and
4. Disinfect your boat, equipment and gear by either:
    a. Washing with ~212º F water (steam clean), or
    b. Drying thoroughly for five days after cleaning with soap and water and/or high pressure water, or
    c. Disinfecting with either 200 ppm (0.5 oz per gallon or 1 Tablespoon per gallon) Chlorine for 10-minute contact time or 1:100 solution (38 grams per gallon) of Virkon Aquatic for 20- to 30-minute contact time. Note: Virkon is not registered to kill zebra mussel veligers nor invertebrates like spiny water flea. Therefore this disinfect should be used in conjunction with a hot water (>104º F) application.

Complete the inspection and removal procedure before equipment is brought to the project site and before the equipment leaves the project site.
107-055 (20130615)

## 16. Environmental Protection – Waste.

Conduct construction activities in an environmentally sound manner, including the proper disposal of all demolition material that cannot be recycled.

The excavation management plan for this project has been designed to minimize the off-site disposal of impacted material. Follow the requirements for the off-site management of solid waste (landfill) and reuse of solid waste soil (within the project limits) as indicated in these special provisions. If subsurface contamination or other signs of non-exempt (NR 500.08) solid waste including buried containers, industrial fill, stained soils, noxious odors, etc., are unexpectedly encountered elsewhere on the project during excavation, terminate excavation in the area and notify the engineer immediately. Work with the department's environmental consultant to properly manage the waste following the WisDOT-WDNR materials management options as indicated in the table below. Contact Andrew Malsom (WisDOT) at (262) 548-6705 or Andrew.Malsom@dot.wi.gov to arrange for environmental consultant coordination. The environmental consultant will perform waste characterization and coordinate with the WDNR for an appropriate handling and disposal plan on an emergency basis.

| Management of Material Excavated During Highway Construction | | |
|---|---|---|
| Classification | Characterization of Material | Material Management |
| 1. Common Excavation (NR 500.08(2) Unregulated or Exempt Material) | Native soil<br>Fill soils that have no obvious visual or olfactory contamination and may not have been analyzed for contaminants.<br>Clean unpainted or untreated wood, brick, concrete, cured asphalt, and trace amounts of glass. | Contractor-selected sites approved through Erosion Control Implementation Plan (ECIP) review process, or on-site reuse |
| 2. Special Excavation (NR 500.08(4) Solid Waste Low Hazard Exemption) | Soil with low levels of petroleum contamination or contaminant metals within the site fill plan criteria.<br>Trace amounts (<25% volume of the excavation equipment's bucket load) of foundry sand, cinders, and fly ash. | WisDOT selected site or on-site reuse with WDNR concurrence. Sites must meet the location criteria of 504.04 (3) (c) and (4) (a) to (f). Fill plans are also approved through ECIP review process. |
| 3. Contaminated Soil and Fill Material | Lead painted or treated wood<br>Petroleum contaminated soil<br>Significant amounts (>25% volume of the excavation equipment's bucket load) of foundry sand, cinders, or fly ash. | Contaminated material disposed at a WDNR-licensed solid waste disposal facility. Petroleum contaminated material shall be treated at a bioremediation facility (biopile) prior to disposal at the landfill. Direct disposal of contaminated material at landfills without such pre-treatment must be pre-authorized by the WisDOT. |
| 4. Asbestos-containing Waste | Asbestos-containing material | Landfill at a WDNR–licensed solid waste landfill with approval to accept asbestos-containing material. |
| 5. Hazardous Waste | RCRA Subtitle C (NR 600) contaminated media (hazardous waste) | Disposed or treatment under State's hazardous waste disposal contract with Veolia. Significant quantities should be evaluated for potential treatment to render non-hazardous to reduce disposal costs. |
| 6. Potentially contaminated material | Potentially contaminated material with unusual visual, olfactory, or other characteristics | Temporary stockpile with appropriate environmental controls constructed per NR 718.05. Temporary stockpiling at solid waste landfill may be alternative with WDNR and Landfill's approvals. |

## 17. Erosion Control.

*Supplement standard spec 107.20 with the following:*

Erosion control best management practices (BMP's) shown on the plans are at suggested locations. The actual locations will be determined by the contractor's ECIP and by the engineer. Include each dewatering (mechanical pumping) operation in the ECIP submittal. The ECIP will supplement information shown on the plans and not reproduce it. The ECIP will identify how to implement the project's erosion control plan. ECIP will demonstrate timely and diligently staged operations, continuing all construction operations methodically from the initial removals and topsoil stripping operations through the subsequent grading, paving, and re-application of top soil to minimize the period of exposure to possible erosion.

Provide the ECIP 14 days prior to the pre-construction conference. Provide 1 copy of the ECIP to the department and 1 copy of the ECIP to the WDNR Liaison, Kristina Betzold, (414) 263-8517, Kristina.betzold@wisconsin.gov. Do not implement the ECIP until department approval, and perform all work in accordance to the approved ECIP.

Maintain Erosion Control BMP's until permanent vegetation is established or until the engineer determines that the BMP is no longer required.

Stockpile excess materials or spoils on upland areas away from wetlands, floodplains, and waterways. Immediately install perimeter silt fence protection around stockpiles. If stockpiled materials will be left for more than 14 days, install temporary seed or other temporary erosion control measures the engineer orders.

Re-apply topsoil on graded areas, as designated by the engineer, immediately after grading is completed within those areas. Seed, fertilize, and mulch/erosion mat top-soiled areas, as designated by the engineer, within 5 days after placement of topsoil. If graded areas are left not completed and exposed for more than 14 days, seed those areas with temporary seed.

Do not allow any excavation for; structures, utilities, grading, maintaining drainage that requires dewatering(mechanical pumping) of water containing sediments (sand, silt, and clay particles) to leave the work site or discharge to a storm water conveyance system without sediment removal treatment. Prior to each dewatering operation, submit to the department a separate ECIP amendment describing in words and pictorial format an appropriate BMP for sediment removal, in accordance to WisDNR Storm Water Construction Technical Standard, Code 1061, Dewatering. Include reasoning, location, and schedule duration proposed for each operation. Per Code 1061, include all selection criteria: site assessment, dewatering practice selection, calculations, plans, specifications, operations, maintenance, and location of proposed treated water discharge. Provide a stabilized discharge area. If directing discharge towards or into an inlet structure, provide additional inlet protection for back-up protection. Dewatering will be paid for under other bid items in this contract.
SEF Rev. 15_0120

## 18. Erosion Control Structures.

Within seven calendar days after the commencement of work on the bridge superstructure, place all permanent erosion control devices, including riprap, erosion mat, ditch checks, seed, fertilizer, mulch, soil stabilizer, or any other item required by the contract or deemed necessary by the engineer. These devices shall be in place in the area under the bridge and on both sides of the roadway, from the waterway to a point 100-feet behind the backwall of the abutment. Within said limits, place these devices to a height equivalent to the calculated water elevation resulting from a storm that occurs on the average of once every two years (Q2) as shown on the plan, or as directed by the engineer. Prior to initial construction operations, place turbidity barriers, silt screens, and other temporary erosion control measures as shown on the plans, and remove them after the permanent erosion control devices are in place unless directed otherwise by the engineer.

In the event that construction activity does not disturb the existing ground below the Q2 elevation, the above timing requirements for permanent erosion control shall be waived.
107-070 (20030820)

## 19. Notice to Contractor, Notification of Demolition and/or Renovation No Asbestos Found.

Timothy Petrofske and Thomas McCoy, License Numbers All-115985 and All-117261, inspected Structures B-40-104, B-40-105, B-40-111, B-40-113 and B-40-114 for asbestos. No regulated Asbestos Containing Material (RACM) was found on these structures. A copy of the inspection reports are available from: Jeff Bohen at (414) 750-2928.

In accordance with NR447 and DHS159, ensure that DNR or DHS receives a completed Notification of Demolition and/or Renovation (DNR Form 4500-113 (R 4/11), or subsequent revision) via U.S. mail, hand-delivery, or using the online notification system at least 10 working days prior to beginning any construction or demolition. Pay all associated fees. Provide a copy of the completed 4500-113 form to Andrew Malsom, WisDOT SE Region Hazmat & Environmental Engineer at (262) 548-6705, Mark Klipstein, WisDOT Zoo Interchange Construction Project Manager at (414) 750-1496 and DOT BTS-ESS attn: Hazardous Materials Specialist PO Box 7965, Madison, WI, 53707-7965. In addition, comply with all local or municipal asbestos requirements.
Use the following information to complete WisDNR form 4500-113:

**B-40-0104**

- Site Name: Structure B-40-104, USH 45 SB-ZOO INTRCHNG over IH 94 EB-ZOO INTRCHNG
- Site Address: 1.0M S JCT USH 18
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow Street, P.O. Box 798, Waukesha, WI 53187-0798
- Contact: Mark Klipstein
- Phone: (414) 750-1496
- Age: 52 years old. This structure was constructed in 1963.
- Area: 7100 SF of deck

**B-40-0105**

- Site Name: Structure B-40-105, USH 45 SB-ZOO INTRCHNG over IH 94 WB-ZOO INTRCHNG
- Site Address: 0.9 S JCT USH 18 TO E
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow Street, P.O. Box 798, Waukesha, WI 53187-0798
- Contact: Mark Klipstein
- Phone: (414) 750-1496
- Age: 52 years old. This structure was constructed in 1963.
- Area: 8340 SF of deck

**B-40-0111**

- Site Name: Structure B-40-111, IH 94 EB-E-W FREEWAY over CMSTPP RR
- Site Address: 6.3M E JCT USH 18 TO E
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow Street, P.O. Box 798, Waukesha, WI 53187-0798
- Contact: Mark Klipstein
- Phone: (414) 750-1496
- Age: 52 years old. This structure was constructed in 1963.
- Area: 19860 SF of deck

**B-40-0113**

- Site Name: Structure B-40-113, IH 94 EB-E-W FREEWAY over CURTIS RD
- Site Address: 6.0 MI E JCT US18 TO E
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow Street, P.O. Box 798, Waukesha, WI 53187-0798
- Contact: Mark Klipstein
- Phone: (414) 750-1496
- Age: 54 years old. This structure was constructed in 1961.
- Area: 9820 SF of deck

**B-40-0114**

- Site Name: Structure B-40-114, IH 94 WB-E-W FREEWAY over CURTIS RD
- Site Address: 0.8 MI W JCT STH 100 TO N
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow Street, P.O. Box 798, Waukesha, WI 53187-0798
- Contact: Mark Klipstein
- Phone: (414) 750-1496
- Age: 54 years old. This structure was constructed in 1961.
- Area: 9730 SF of deck

**B-40-0753**

- Site Name: Structure B-40-753, IH 894 WB-45NB over IH 94 EB-ZOO INTRCHNG
- Site Address: 0.9 MI N JCT STH 59
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow Street, P.O. Box 798, Waukesha, WI 53187-0798
- Contact: Mark Klipstein
- Phone: (414) 750-1496
- Age: 5 years old. This structure was constructed in 2010.
- Area: 4875 SF of deck

**B-40-0754**

- Site Name: Structure B-40-754, RAMP USH 45 SBL-IH 94 over US 45 NB-ZOO INTERCHANGE
- Site Address: 1.0 MI N JCT STH 59
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow Street, P.O. Box 798, Waukesha, WI 53187-0798
- Contact: Mark Klipstein
- Phone: (414) 750-1496
- Age: 5 years old. This structure was constructed in 2010.
- Area: 7680 SF of deck

**B-40-0537**

- Site Name: Structure B-40-537, US 45 NB-ZOO INTERCHANGE over IH 94 EB-ZOO INTRCHNG
- Site Address: 0.9 MI N JCT STH 59
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow Street, P.O. Box 798, Waukesha, WI 53187-0798
- Contact: Mark Klipstein
- Phone: (414) 750-1496
- Age: 1 year old. This temporary structure was constructed in 2015.
- Area: 7150 SF of deck

**B-40-0538**

- Site Name: Structure B-40-538, US 45 NB-ZOO INTERCHANGE over IH 94 W`111111 B-ZOO INTRCHNG
- Site Address: 1.0 MI N JCT STH 59
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow Street, P.O. Box 798, Waukesha, WI 53187-0798
- Contact: Mark Klipstein
- Phone: (414) 750-1496
- Age: 1 year old. This temporary structure was constructed in 2015.
- Area: 8500 SF of deck

Insert the following paragraph in Section 6.g.:

- If asbestos not previously identified is found or previously non-friable asbestos becomes crumbled, pulverized, or reduced to a powder, stop work immediately, notify the engineer, and the engineer will notify the department's Bureau of Technical Services at (608) 266-1476 for an emergency response in accordance to standard spec 107.24. Keep material wet until it is abated or until it is determined to be non-asbestos containing material.

107-125 (20120615)

## 20. Public Convenience and Safety.

*Revise standard spec 107.8(6) as follows:*

Check for and comply with local ordinances governing the hours of operation of construction equipment. Do not operate motorized construction equipment from 9:00 PM until the following 7:00 AM, unless prior written approval is obtained from the engineer.

| | |
|---|---|
| Residential areas | Do not exceed 5 dB(A) over preconstruction ambient noise levels |
| All other areas outside WisDOT right-of-way | Do not exceed 5 dB(A) over preconstruction ambient noise levels |

Prior to waiving the noise compliance by the engineer, provide 48 hour advance notice to Mr. Jeff Polenske, Milwaukee City Engineer, at (414) 286-3701; Mr. William Wehrley, Wauwatosa City Engineer, at (414) 479-8929; or Mr. Peter Daniels, West Allis City Engineer, at (414) 302-8374 regarding the evening noise generating construction operations.
107-001 (20060512)

## 21. Notice to Contractor - Department Provided Advanced Bill of Materials Drawings.

In order to facilitate the ordering of schedule critical structural steel immediately upon receiving Notice to Proceed, the department will provide Advanced Bill of Materials (ABM) drawings for the following structures only: B-40-786, B-40-853, B-40-854, and B-40-856. These ABM drawings will be developed to the stage where a material mill order can be placed. Steel detailing calculation plans, web camber diagrams, flange cutting diagrams, crossframe and diaphragm layouts, and material orders will be developed as part of this ABM drawing development. The drawings are provided to the contractor for information only. The contractor is responsible for any steel orders based upon these ABM drawings.

The ABM drawings, which the contractor can use to prepare the steel mill orders, will be prepared by:

Tensor Engineering
2060 South Patrick Drive
Indian Harbour Beach, FL 32937
Telephone (321) 773-3036

Tensor Engineering will prepare the ABM drawings prior to the letting. The preliminary drawings will be placed on the Wisconsin Department of Transportation HCCI web site no later than August 15, 2015 under the following location:

http://wisconsindot.gov/Pages/doing-bus/contractors/hcci/prelim-plan-se.aspx

Final ABM drawings will be made available at contract award.

Contact Walter Gatti at Tensor Engineering for a description of the information that will be included on the ABM drawings and the level to which they will be completed.

Contractors are permitted to, but not required to, contract with Tensor Engineering for the completion of the structural steel shop drawings for the structures identified above or for the remainder of the structures on the project.

## 22. Notice to Contractor – Traffic Signal Equipment Lead Time.

Lead time for traffic signal equipment specified for this project has been ranging from 12-weeks to 18-weeks. Order equipment as soon as possible to assure the equipment is procured in a timely fashion and, therefore, installed, inspected, and ready for turn-on at the required date.

## 23. Notice to Contractor – Hank Aaron State Trail.

Between N. 121st Street and S. 94th Place, the Hank Aaron State Trail (HAST) is available to access work zones. The contractor does not have full rights to the HAST and will need to coordinate access with contractors performing department work as part of the projects listed in the Other Contracts article.

## 24. Notice to Contractor - Construction Staging Areas.

The Construction Staging Areas listed below will be made available for the contractor's use after July 1, 2016.Areas are currently in use by Wisconsin Constructors II, LLC for ID 1060-33-80. These locations may be utilized under this contract prior to July 1, 2016 only after written permission to use the site is granted from Wisconsin Constructors II, LLC and that permission is provided to the department.

- East of IH 894 between W. Lincoln Avenue and W. National Avenue
- Westbound Loop Ramp to Moorland Road (Northwest Quadrant)

The Wisconsin DNR Forestry Exploration Center Property, located between Underwood Parkway and Swan Boulevard will be made available for the contractor's use as a Construction Staging Area after May 2, 2016. This area is currently in use by Wisconsin Constructors II, LLC for ID 1060-33-80. This location may be utilized under this contract prior to May 2, 2016 only after written permission to use the site is granted from Wisconsin Constructors II, LLC and that permission is provided to the department.

The property located at 1900 N. Mayfair Road, Milwaukee, WI will be made available for the contractor's use as a Construction Staging Area after July 1, 2016. This location may be utilized under this contract until November 31, 2017.

Contractor use of the above staging areas is restricted to the direct construction of this project unless otherwise approved by the engineer in writing. This restriction applies to importing and exporting materials, salvaged or manufactured, either to or from locations outside of the scope of this project.

Submit a site plan for construction staging areas to the engineer for review. The department will either approve the site plan or request revisions.

Construction staging areas must be included as a selected site in the ECIP for this contract. During construction, the contractor is responsible for installing and maintaining proper

erosion control devices at the staging areas. Protect storm sewer inlets from runoff. Install tracking pads for ingress and egress.

Maintain curb cutout access for emergency response vehicle access to each staging area at all times.

There are existing overhead and/or underground utility facilities located within the staging areas. At all times, maintain access for utility maintenance vehicles to each staging area and to all existing utility facilities therein. Identify and mark the existing utility facilities. Maintain a 20-foot horizontal clearance zone from all utility poles, towers, manholes, vaults or pedestals. Maintain vertical clearance from all energized utility lines in accordance to current OSHA and/or applicable code requirements. Conduct operations in such a manner as to prevent damage to existing utilities. Notify the utility owner promptly if damage occurs. Repair all damage caused to such utilities resulting from negligence or carelessness on the part of the contractor's operations at contractor expense.

Contact utility companies to coordinate any construction activities near their facilities and 7 days prior to any excavation in the area of their facilities. Contact Amy Plato, (414) 385-6149, of We Energies to coordinate construction activities in the area of gas or electric distribution facilities. Contact Brian Black, (262) 506-6907, of American Transmission Company to coordinate construction activities in the area of overhead electric transmission facilities.

If the site located east of IH 894 between W. Lincoln Avenue and W. National Avenue is used as a staging area, the contractor must maintain a screening fence west of S. 100$^{th}$ Street between W. Lincoln Avenue and W. National Avenue. Stockpiling dirt, crushing and batch plant operations are not permitted at the staging area located east of IH 894 between W. Lincoln Avenue and W. National Avenue.

Vacate the construction staging areas by the completion date of this contract. Prior to final completion of work, restore staging areas to their preconstruction site grades and condition as directed by the engineer.

## 25. Notice to Contractor – Southwest Core Pond Temporary Drainage.

The proposed storm sewer, constructed under the future IH 94 eastbound roadway as shown in the stage 4 of the plans, will not be able to freely drain to the proposed pond outlet structure until after switching IH 94 eastbound traffic from the existing roadway to the newly constructed roadway in stage 5. Beginning in stage 4, storm runoff will be collected in the new inlets and will drain into the new storm sewer system and a portion of the Southwest Core Pond. This portion of the Southwest Core Pond will not be connected to the proposed pond outlet and this could result in standing water on the roadway during large or multiple rain events.

To prevent roadway flooding from occurring, the plans include staged construction of Southwest Core Pond. In stage 4, excavate Southwest Core Pond stage 4 between the existing and proposed eastbound roadways from Station 179EW+41 to 185EW+95. After a storm event the contractor shall pump the pond dry to provide storage for any future storms.

Immediately following the IH 94 eastbound traffic shift as shown in stage 5, excavate Southwest Core Pond stage 5 from the Southwest Core Pond stage 4 configuration to the proposed pond outlet. This will eliminate the need for the contractor to pump the pond.

Once the pond is connected to the proposed pond outlet, continue excavating the remaining portion of South West Core Pond to its final configuration, as shown in Southwest Core Pond Stage 6.

Pumping is considered incidental to construction and no additional compensation will be made.

## 26. Notice to Contractor - Milwaukee County Transit System.

The Milwaukee County Transit System (MCTS) maintains multiple bus routes throughout the project corridor along the project. Notify MCTS at least ten days prior to beginning work. The MCTS contact is Ms. Melanie MacArthur, (414) 343-1764.

Invite MCTS to all coordination meetings between the contractor, the department, local officials and business people to discuss the project schedule of operations including vehicular and pedestrian access during construction operations.

MCTS will remove their existing bus stop signs and shelters. Notify MCTS at least ten days in advance. MCTS will install new bus stop signs and shelters prior to the opening of traffic on the new roadway pavement. Notify MCTS at least ten days prior to opening new pavement to vehicular traffic.

The contractor shall provide a safe boarding zone that is clear of debris and ADA compliant at each temporary bus stop. MCTS will install temporary bus stop signs if notified at least ten days in advance.

## 27. Notice to Contractor – Milwaukee County Zoo.

At the Milwaukee County Zoo, a continuous 8-foot high perimeter fence must be kept intact at all times. Prior to the removal of any existing perimeter fence at the Milwaukee County Zoo, Fence Chain Link 8-FT must be installed.

## 28. Notice to Contractor – Contamination Beyond Construction Limits.

Contaminated soil is present at the following sites:

- I-94 East-West Station 117EW+50 to 123EW+50, beyond project limits right (Solvox, 11725 W. Fairview Ave., WDNR BRRTS Nos. 02-41-000901, 03-41-001957, 03-41-003021, 04-41-169493, 04-41-261725, 04-41-542992). Soil at this site is contaminated with petroleum, metals, and chlorinated solvents.

- Ramp BB Station 815BB+00 to 819BB+00, beyond project limits right (Milwaukee Engineering Center, 345 N. 95th St., WDNR BRRTS No. 03-41-002180). Soil at this site is contaminated with petroleum.

The contaminated soil at the above sites is expected to be beyond the excavation limits necessary to complete the work under this project. Control construction operations near these locations to ensure that they do not extend beyond the excavation limits indicated in the plans. If contaminated soil is encountered near these sites or elsewhere on the project during excavation, terminate excavation in the area and notify the engineer.

The Hazardous Materials Report is available by contacting: Andrew Malsom Wisconsin Department of Transportation, 141 NW Barstow, Waukesha, WI 53187, (262) 548-6705, Andrew.Malsom@dot.wi.gov.
107-100 (20050901)

## 29. Notice to Contractor – Waste.

Use excess earthwork as shown in the plans and the earthwork table. In addition, the contractor is advised to contact the contractor for Contract ID 1060-33-94, Zoo IC – Swan Boulevard and Discovery Parkway roundabout project between USH 45 and Underwood parkway as a possible waste site. Construction of this adjacent project is anticipated between April and September of 2017. The WisDOT contact is Christopher Hager at (414) 750-1487; christopher.hager@dot.wi.gov.

## 30. Notice to Contractor – Disposal of Treated Railroad Ties.

Treated wood is a regulated solid waste per NR 500 of the Wisconsin Administrative Code. Waste railroad ties generated by the project must be landfilled at a licensed disposal facility. Costs associated with their handling and disposal are incidental to the project.

## 31. Notice to Contractor – Airport Operating Restrictions.

Fill out the FAA Notice Criteria tool for any permanent structure (bridge, light pole, etc.) or equipment (crane, etc.) used during construction.

http://oeaaa.faa.gov/oeaaa/external/portal.jsp

If required by the Notice Criteria tool, and for any crane or construction equipment higher than 200 feet above the ground, submit completed form 7460-1 (Notice of Proposed Construction or Alteration) to The Federal Aviation Administration (FAA) at least 45 days before starting construction.
SEF Rev. 14_0609

## 32. Notice to Contractor – Preserving Trees, Shrubs, and Planting Areas in the City of Milwaukee.

*Replace standard spec 205.3.15 with the following:*

**A Description**
This special provision applies to preserving trees, shrubs, and planting areas only located in the City of Milwaukee, which are NOT marked for removal.

**B (Vacant)**

**C Construction**
**C.1 General**
All cutting for the removal of sod and soil in order to establish a finished grade within 4 feet of existing trees must be done manually if necessary.

No construction equipment, cars, trucks, and/or materials shall be parked or stored on any median or tree border on this project or adjacent roadways.

Root foundations must remain adequate to withstand heavy windstorms.

Root systems of street trees may not be cut for the installation of any type of cable by the contractor or city department. Contact the forestry division at (414) 286-2428 for directional boring specifications.

The contractor will be responsible for excessive damage to the roots, trunks, and branches of all street trees. This responsibility may include the cost of any special treatment deemed necessary by the engineer to ensure survival of trees, or may include removal of trees at the contractor's cost.

Refrain from placing or storing any construction materials, sand, soil, or any other materials on the surface of the soil within the root zone of existing city street trees. Additionally, assure that no construction chemicals, tank rinsates, or petroleum products are deposited with the root zones of the trees. Root zone is defined as that area within the drip line of trees.

The contractor, prior to removal and/or replacement of sidewalk and/or curb and gutter, and driveways adjacent to all trees, shall review work operations with the engineer and/or Mr. Jim Kringer, forestry supervisor, at (414) 708-2428.

The following 15 trees are to be removed by the contractor:

| | |
|---|---|
| 21WX+53, RT | 22WX+45, RT |
| 22WX+41, RT | 23WX+13, RT |
| 23WX+98, RT | 35WX+51, RT |
| 32WX+94, RT | 36WX+53, RT |
| 33WX+79, RT | 36WX+55, LT |
| 34WX+24, RT | 36WX+74, LT |
| 34WX+75, RT | 36WX+92, RT |
| 35WX+44, LT | |

**C.2 Sidewalk Construction**
The root system on the walk side of the tree shall be cut not deeper than 9 inches below the finished grade of the new walks, and not more than 5 inches from the edge of the new walk. Roots in the walk area shall be removed only to a depth of 9 inches below finished grade of the new walk.

Sidewalks are to be removed, and roots cut, by use of hand implements only.

**C.3 Carriage Walk Construction**
When constructing or replacing carriage walks, roots shall not be cut by means of using mechanical root cutting machines. If root removal is essential to carriage walk replacement, roots shall be manually cut with hand implements. Roots shall be removed not deeper than 9 inches below the finished grade of the new carriage walk.

**C.4 Curb, Gutter, and Road Construction**
When constructing or replacing driveways or driveway approaches; roots shall not be cut by means of mechanical root cutting machines. If root removal is essential to driveway replacement, roots shall be manually cut with hand implements.

Cover exposed tree roots with mulch and water from a period immediately following curb and gutter removal, until the area is backfilled following construction. The cost of this work is incidental to removal items.

**C.5 Damage and Repair**
Caution should be used during the construction process to avoid damage to the roots, trunks, and branches of all street trees. Damage caused to any street tree or irrigation system will be repaired by the City of Milwaukee's Forestry Division and the costs of repair, rejuvenation, and/or value lost will be billed to the contractor or credited against the contract at the option of the city. If any of the irrigation system is damaged immediately contact Mr. Andrew Witczak at (414) 708-3795 or (414) 803-7392, andywitczak@yahoo.com for repair. Any and all questions regarding the irrigation system can be directed to Mr. Witczak.

At locations where the contractor has not complied with the forestry special requirements stated in the special provisions above, and the maximum clearance was exceeded or a thin form was not used, a minimum credit to the city of $50.00 per location will be taken. The credit will increase in proportion to the excess distance beyond clearance allowed. The credit will be $50.00 for each 2-inch increment or part thereof in excess of the initial clearance allowed. Any damage to the tree's structure totaling 15 percent of the trees value will be billed on a prorata basis. If, in the opinion of the City of Milwaukee's Forestry Division, the tree has been damaged to the point that it warrants removal, the credit that will be taken will be equal to $100.00 per inch diameter of the tree. A field measurement will be taken to determine the tree size.

**D (Vacant)**

**E Payment**
The cost of this work shall be included under appropriate bid items for roadway and drainage excavation, sewer and water excavation, and removals. No separate payment will be made for preserving trees, shrubs, and planting areas located in the City of Milwaukee.

## 33. Notice to Contractor - Road Weather Information System (RWIS) Coordination.

The RWIS included in this project is a non-intrusive system. The system sensors are installed on a pole or tower next to the roadway. The system is furnished and installed through a separate contract.

Contact Ahmet Demirbilek, State Electrical Engineer, WisDOT Bureau of Traffic Operations; State Traffic Operation Center; (414) 220- 6801 office or (414) 322- 9606 cell, within 3 days of completion of conduit and pull boxes to the Road Weather Information System, to coordinate concrete base, tower, sensor, cabinet, and controller installation.

## 34. Public Involvement Meetings.

Participate in department-sponsored public involvement meetings as the engineer requests. Ensure that representatives of subcontractors also participate in those meetings if the engineer requests.
SEF Rev. 14_0312

## 35. Traffic Meetings and Traffic Control Scheduling.

Every Wednesday by 9:00 AM, submit a detailed proposed 2-week look-ahead traffic closure schedule to the engineer. Type the detailed proposed 2-week look-ahead closure schedule into an excel spreadsheet provided by the engineer. Enter information such as closure dates, duration, work causing the closure and detours to be used. Also enter information such as ongoing long-term closures, emergency contacts and general 2-month look-ahead closure information into the excel spreadsheet.

Meet with the engineer at 10:00 AM on Wednesdays at the Zoo Interchange project office on 2424 S. 102nd Street; West Allis to discuss and answer questions on the proposed schedule. Edit, delete and add closures to the detailed proposed 2-week look-ahead schedule, as directed by the engineer, so that proposed closures meet specification requirements. Other edits, deletions or additions unrelated to meeting specification requirements may also be agreed upon with the engineer during the 10:00 AM meeting.

Every Wednesday at 2:00 PM, attend a weekly traffic meeting. The meeting will bring local agencies, project stakeholders, owner managers, owner engineers, contractors, document control and construction engineering personnel together to discuss traffic staging, closures and general impacts. Upon obtaining feedback from the meeting attendees, edit, delete and add information to the detailed 2-week look-ahead closure schedule, as needed. Submit the revised 2-week look-ahead to the engineer by 12:00 PM on Thursdays.

Obtain approval from the engineer for any changes to the closure schedule that is proposed outside the Wednesday meetings, including additional closures or cancellations. Submit requests for additional closures or cancellations for Friday, Saturday, Sunday or Monday of the current schedule week by 12:00 PM on Thursday. Revise the 2-week look-ahead as needed to reflect these changes and submit to the engineer.

## 36. Material and Equipment Staging.

Submit a map showing all proposed material stockpile or equipment storage locations to the engineer 14 days prior to either preconstruction or proposed use, whichever comes first. Identify the specific purposes for the location. Obtain written permits from the property owner, and submit two copies to the engineer before use. Do not stockpile or store materials or equipment on wetlands.
SEF Rev. 13_0204

## 37. 3D Model Data.

The department will provide for Project 1060-33-81, for informational purposes only, detailed 3D proposed and existing model data or portions of data which includes: pavement, storm sewer, drainage, structures, signals, signs, FTMS, electrical, lighting, fencing, sanitary sewer and water main, and grading including proposed top, proposed base course, and proposed datum (subgrade) for automated machine guidance (AMG). The department will provide the above data, or portions of the 3D model data, electronically consisting of electronic 2D/3D files containing features, points, reference lines, breaklines, area extents lines, profiles, LandXML v1.2 files and TIN Civil 3D surfaces in Autocad 2012 dwg files with horizontal datum - NAD-83 (GRS-1980) (2007), vertical datum - NAVD-1988 (2007), and coordinate projection - Wisconsin County Coordinate System in U.S. survey ft. The department will provide the composite model data prior to project LET date as requested by the contractor by email to jeff.bohen@dot.wi.gov.

Upon Notice to Proceed, the department will also provide a composite model of stage 1 construction and will provide subsequent stage models as necessary.

The Models will include at a minimum the requirements as described in the table below:

| ELEMENT | FORMAT | LOA-CD | LOD-CD | TEMPORARY | BY STAGE |
|---|---|---|---|---|---|
| **Right-of-Way and Environmental Areas** | | | | | |
| Right-of-way-Proposed | DGN/DWG | 0.01' | 2D | N/A | N/A |
| Easements-Proposed | DGN/DWG | 0.01' | 2D | N/A | N/A |
| Fences-Proposed | DGN/DWG | <0.06' | 2D | 2D | N/A |
| Wetlands-Located/Surveyed-Existing | DGN/DWG | <0.06' | 2D | N/A | N/A |
| **Non-roadway Surfaces** | | | | | |
| Surfaces-Existing | DGN/DWG/XML | <0.06' | 3D | N/A | N/A |
| Grading/Non-roadway Surfaces-Proposed | DGN/DWG/XML | <0.06' | 3D | 3D | Yes |
| Cut/Fill Areas-Isopachs-Proposed | DGN/DWG | <0.06' | 2D | N/A | N/A |
| Longitudinal Breaklines /Surface Points | DGN/DWG | <0.06' | 3D | N/A | N/A |
| Slope Intercepts/Surface Limits | DGN/DWG | <0.06' | 2D | N/A | N/A |
| **Roadways/Roadway Features Surfaces-Proposed** | | | | | |
| Roadway Pavement-Top Surfaces-Proposed | DGN/DWG/XML | <0.02' | 3D | 3D | Yes |
| Roadway Pavement-Base Course Surfaces-Proposed | DGN/DWG/XML | <0.06' | 3D | 3D | Yes |
| Roadway Pavement-Subgrade Datum Surfaces-Proposed | DGN/DWG/XML | <0.06' | 3D | 3D | Yes |
| Roadway Curb and Gutter-Proposed | DGN/DWG/XML | <0.02' | 3D | 3D | Yes |
| Roadway Barrier-Proposed | DGN/DWG/XML | <0.06' | 3D | 3D | Yes |
| Roadway Pavement Marking-Existing | DGN/DWG | <0.10' | 2D | N/A | N/A |
| Roadway Pavement Marking-Proposed | DGN/DWG | <0.10' | 2D | 2D | Yes |
| Roadway Stationing-Proposed | DGN/DWG | 0.01' | 2D | N/A | N/A |
| Roadway Alignments/Reference Lines-Proposed | DGN/DWG | 0.01' | 2D | N/A | N/A |
| Superelevation Transition Stations-Proposed | CSV | 0.01' | N/A | N/A | N/A |

| | | | | | |
|---|---|---|---|---|---|
| **Drainage-Storm Sewer - Proposed** | | | | | |
| Inlets/MHs/Outfalls/Pipe /Culverts/Ponds | DGN/DWG | <0.06’ | 3D | 3D | Yes |

| | | | | | |
|---|---|---|---|---|---|
| **Bridges-Proposed** | | | | | |
| Stone Base | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Piles | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Footings | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Abutments | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Piers | DGN/DWG/XML | <0.02’ | 3D | 3D | Yes |
| CI Beams | DGN/DWG/XML | <0.02’ | 3D | 3D | Yes |
| Seats | DGN/DWG/XML | <0.02’ | 3D | 3D | Yes |
| Deck Including Fillets | DGN/DWG/XML | <0.02’ | 3D | 3D | Yes |
| Light Blisters | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Parapet Walls | DGN/DWG/XML | <0.06’ | 3D | N/A | N/A |
| **Retaining Walls-Proposed** | | | | | |
| **MSE-Proposed** | | | | | |
| Straps | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Footings | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Top | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Coping | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| **Cast-in-Place-Proposed** | | | | | |
| Stone | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Piles | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Top of Footings | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Face of Wall | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Coping | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| **Pile and Lagging-Proposed** | | | | | |
| CI Piles at Top and Bottom | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Face of Wall/Face of Piles | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Bottom of Wall | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Top of Wall/Coping | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Face of Piles | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Top and Toe of Sheets | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| **Sign Bridges-Proposed** | | | | | |
| Footings | DGN/DWG/XML | <0.06’ | 3D | N/A | N/A |
| Piles | DGN/DWG/XML | <0.06’ | 3D | N/A | N/A |
| Structure | DGN/DWG/XML | <0.06’ | 3D | N/A | N/A |
| **Other Structures-Proposed** | | | | | |
| Noise Walls | DGN/DWG/XML | <0.06’ | 3D | N/A | N/A |
| Screening Fences | DGN/DWG/XML | <0.06’ | 3D | N/A | N/A |
| Tunnels-Utility | DGN/DWG/XML | <0.06’ | 3D | N/A | N/A |

| | | | | | |
|---|---|---|---|---|---|
| **Special Foundations-Proposed** | | | | | |
| Drilled Shafts | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Driven Piles | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Bored Piles | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Caissons | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| **Special Foundation Walls-Proposed** | | | | | |
| Foundation Anchors | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Underpinning | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Pile Caps | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Grade Beams | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| Tiebacks | DGN/DWG/XML | <0.06’ | 3D | 3D | Yes |
| **Lighting-Proposed** | | | | | |
| Poles/Masts/Bases | DGN/DWG | <0.06’ | 3D | 3D | Yes |
| Conduit/Cabinets/Pull Boxes | DGN/DWG | <0.06’ | 3D | 3D | Yes |
| **FTMS-Proposed** | | | | | |
| DMS/CMS | DGN/DWG | <0.06’ | 2D | N/A | N/A |
| FTMS Fiber Optic lines | DGN/DWG | <0.06’ | 3D | N/A | N/A |
| FTMS Huts/Cabinets | DGN/DWG | <0.06’ | 2D | N/A | N/A |
| **Signs-Proposed** | | | | | |
| Signs-Type 1 | DGN/DWG | <0.06’ | 2D | 2D | Yes |
| Signs-Type 2 | DGN/DWG | <0.06’ | 2D | 2D | Yes |
| **Traffic Signals-Proposed** | | | | | |
| Poles/Heads/Bases | DGN/DWG | <0.06’ | 3D | 3D | Yes |
| Conduit/Pull Boxes | DGN/DWG | <0.06’ | 3D | 3D | Yes |
| **Water Main Proposed** | | | | | |
| Pipes | DGN/DWG | <0.06’ | 3D | N/A | N/A |
| Hydrants/Valves/Fittings/ Standpipes | DGN/DWG | <0.06’ | 3D | N/A | N/A |
| **Sanitary Sewer-Proposed** | | | | | |
| Pipes | DGN/DWG | <0.06’ | 3D | N/A | N/A |
| Manholes | DGN/DWG | <0.06’ | 3D | N/A | N/A |

LOA (CD) = Level of Accuracy (LOA) – Contract Documents (CD) of the “Model Element” (such as 0.06’).

LOD (CD) = Level of Development (LOD) – Contract Documents (CD) of the “Model Element” (such as 2D, 3D, 4D, 5D, or XD).

The department is providing, by agreement with contractor and subcontractors, materials stored electronically. The parties recognize that data, plans, specifications, reports, documents, or other information recorded on or transmitted as electronic media (including but not necessarily limited to “CAD, CIM, BIM, GIS or other electronic documents”) are subject to undetectable alteration, either intentional or unintentional, due to, among other causes, transmission, conversion, media degradation, software error, or human alteration.

Accordingly, all such documents are provided to the parties for informational purposes only and not as an end product or as a record document. Any reliance thereon is deemed to be unreasonable and unenforceable. The signed and stamped hard copy of the plans, specifications and estimates or other contract documents are the only true contract documents of record.

## 38. Available Documents.

The department will make all its information available to bidding contractors. The list of documents that are available for contractors' information includes but is not limited to:

- Design Study Report
- Exceptions to Standards Report
- Interstate Access Justification Report
- Pavement Type Selection Report
- Environmental Document
- As-Built Drawings
- Preconstruction survey
- Traffic Management Plan

These documents are available from Jeff Bohen at 141 NW Barstow Street, Waukesha, WI, 53187, (414) 750-2928.

Reproduction costs will be applied to any copies requested.

## 39. Geotechnical Investigation Information.

*Replace standard spec 102.5(3) 2 with the following:*

Available information relative to subsurface exploration, borings, soundings, water levels, elevations or profiles are available for review at the department's Regions office. Contact Jeff Bohen, 141 NW Barstow Street, Waukesha, WI 53187, (414) 750-2928.

- Geotechnical Exploration and Bridge Foundation Evaluation Report, Bridge B-40-786 (WS System Ramp), May 1, 2015.
- Geotechnical Exploration and Bridge Foundation Evaluation Report Bridge B-40-787 (W-S/ W-N Gore over STH 100 Ramp), May 1, 2015.
- Geotechnical Exploration and Bridge Foundation Evaluation Report, Bridges B-40-788 (southbound USH 45/ I-894 over Hank Aaron State Trail), March 1, 2015.
- Geotechnical Exploration and Foundation Evaluation Report Bridge B-40-790, March 1, 2015.
- Geotechnical Exploration and Foundation Evaluation Report Bridge B-40-795, February 16, 2015.
- Geotechnical Exploration and Foundation Evaluation Report Bridge B-40-796, February 13, 2015.

- Geotechnical Exploration and Foundation Evaluation Report Bridge B-40-797 (Southbound USH 45 / I-894 over Schlinger), May 1, 2015.
- Geotechnical Exploration and Bridge Foundation Evaluation Report Bridge B-40-850 and Retaining Walls R-40-507/R-40-509, December 2, 2014.
- Geotechnical Exploration and Bridge Foundation Evaluation Report Bridge B-40-851, October 21, 2014.
- Geotechnical Exploration and Bridge Foundation Evaluation Report, Bridge B-40-853 (NE System Ramp), May 1, 2015.
- Geotechnical Exploration and Bridge Foundation Evaluation Report Bridge B-40-854, April 20, 2015.
- Geotechnical Exploration and Bridge Foundation Evaluation Report Bridge B-40-856 (Ramp WN Zoo Interchange Core), May 1, 2015.
- Geotechnical Exploration and Bridge Foundation Evaluation Report Bridge B-40-858, May 1, 2015.
- Geotechnical Exploration and Bridge Foundation Evaluation Report Bridge B-40-859, December 11, 2014.
- Geotechnical Exploration and Bridge Foundation Evaluation Report Bridge B-40-860, December 19, 2014.
- Geotechnical Exploration and Bridge Foundation Evaluation Report Bridge B-40-861, May 1, 2015.
- Geotechnical Exploration, Bridge Foundation, and Retaining Wall Evaluation Report Bridge B-40-867 (Wisconsin Ave over US 45), R-40-558 (West Abutment Wall at Wisconsin Ave) and R-40-559 (East Abutment Wall at Wisconsin Ave), June 21, 2013.
- Geotechnical Exploration and Bridge Foundation Evaluation Report Bridges B-40-869 and B-40-870 (I-94 over HAST), March 1, 2015.
- Geotechnical Exploration and Bridge Foundation Evaluation Report Bridges B-40-882 and B-40-883 (Mainline US45 over UPRR), July 11, 2014.
- Geotechnical Exploration and Retaining Wall Evaluation Report, Retaining Wall R-40-467 (Stage 2), March 1, 2015.
- Geotechnical Exploration and Retaining Wall Evaluation Report, Retaining Wall R-40-468 (Stage 2), March 1, 2015.
- Geotechnical Exploration and Retaining Wall Evaluation Report Retaining Wall R-40-469 (Stage 2), March 1, 2015.
- Geotechnical Exploration and Retaining Wall Evaluation Report, Wall R-40-470 (South 100$^{th}$ Street Along Ramp GD), March 1, 2015.
- Geotechnical Exploration and Retaining Wall Evaluation Report, Wall R-40-495, May 1, 2015.
- Geotechnical Exploration and Retaining Wall Evaluation Report, Walls R-40-497, R-40-498, and R-40-527 (Ramps CS and ES), March 1, 2015.
- Geotechnical Exploration and Retaining Wall Evaluation Report Retaining Wall R-40-505, December 12, 2014.
- Geotechnical Exploration and Retaining Wall Evaluation Report, Wall R-40-516, February 9, 2015.

- Geotechnical Exploration and Retaining Wall Evaluation Report, Wall R-40-518, December 23, 2014.
- Geotechnical Exploration and Retaining Wall Evaluation Report, Wall R-40-520, December 23, 2014.
- Geotechnical Exploration and Retaining Wall Evaluation Report, Zoo Interchange Corridor, Wall R-40-522 (SE Ramp North of Schlinger Avenue), Milwaukee County, Wisconsin, March 1, 2015.
- Geotechnical Exploration and Retaining Wall Evaluation Report, Wall R-40-524 (Stage 4), March 1, 2015.
- Geotechnical Exploration and Retaining Wall Evaluation Report, Wall R-40-525, Stage 3 (Schlinger Avenue, Ramp GE), March 1, 2015.
- Geotechnical Exploration and Retaining Wall Evaluation Report Retaining Wall R-40-529 (South Leg North of Greenfield), March 1, 2015.
- Geotechnical Exploration and Retaining Wall Evaluation Report Wall R-40-532, July 21, 2014.
- Geotechnical Exploration and Retaining Wall Evaluation Report Retaining Wall R-40-534, September 13, 2013.
- Geotechnical Exploration and Retaining Wall Evaluation Report, Wall R-40-535 (Ramp WS/WN - West of B-40-787), May 1, 2015.
- Geotechnical Exploration and Retaining Wall Evaluation Report Retaining Wall R-40-540 (Wall Along I-94 – HAST to N. 121st Street), March 1, 2015.
- Geotechnical Exploration and Retaining Wall Evaluation Report Retaining Wall R-40-545 (Ramps SE and NE), March 1, 2015.
- Geotechnical Exploration and Retaining Wall Evaluation Report Retaining Wall R-40-547 (ES Ramp East of Core), March 1, 2015.
- Geotechnical Exploration and Retaining Wall Evaluation Report Retaining Wall R-630, R-40-631 and R-40-655 (HAST ACCESS RAMP FROM STH 100), March 1, 2015.
- Traffic Sign Memorandum Core II Structures, May 1, 2015.
- Noise Barrier Data Memorandum Core II Structures, December 12, 2014.
- Geotechnical Data Report South Leg Storm Sewer – Manholes Z2822 to Z2431 (South Leg Tunnel), May 1, 2014.
- Geotechnical Baseline Report South Leg Storm Sewer – Manholes Z2822 to Z2431 (South Leg Tunnel), May 1, 2014.
- Geotechnical Exploration and Pavement/Embankment Subgrade Suitability recommendations for I-894 Auxiliary Lanes, January 12, 2015

Additional geotechnical information is available from studies and analyses that have been performed by Forward 45, LLC (F45) for the Wisconsin Department of Transportation (WisDOT) for other aspects of this project. Review the available information to determine if it is of use. The use or not of the geotechnical information does not relieve performing the work in accordance to the plans and specifications.
SEF Rev. 14_1211

## 40. Contract Award and Execution.

*Supplement standard spec 103 as follows:*

**103.9 Bid Escrow Documentation**

The department will require the lowest responsible bidder to submit documentation to be placed in escrow at a document storage facility. Bid Escrow Documentation (BED) consists of writings, working papers, computer printouts, charts, and data compilations that contain or reflect information, data, calculations or assumptions used by the bidder to determine the proposal submitted. If the apparent low bid is withdrawn or rejected, the second low bidder will provide the required documents as specified below within 72 hours of written notification by the department.

The BED shall clearly itemize the contractor's estimated costs of performing the scope of work defined in the contract.

The BED shall include, but not be limited to, all quantity takeoffs, rate schedules for the direct costs of craft labor, construction (expendable materials), construction equipment ownership costs, construction equipment operating costs, permanent materials subcontractors and insurance. Also include development of rates of production including, where appropriate: estimate of crews, construction materials, construction equipment, and construction sequence and duration. Submit the BED for each subcontractor whose total subcontract costs exceed $500,000.

Identify the allocation of construction plant and equipment, time and non-time related indirect costs (including if applicable joint venture fees), home office overhead, contingencies and margin applicable to each bid item. Further, documentation shall include consultant's reports, final estimate adjustment calculations, and all other information used by bidders to arrive at the estimate.

Any manuals standard to the industry used by the bidder in determining the proposal are also considered part of the BED. These manuals may be included in the proposal documentation by reference and shall show the name and date of the publication and the publisher.

It is not necessary to include documents provided by the department for the bidder's use in the preparation of the proposal.

The low bidder shall present authentic copies of their BED at the department's office, located at 2424 S. 102nd Street, West Allis, WI by September 4, 2015, at 10:00 AM.

At the time of submittal, only designated representatives of the apparent low bidder and the department will jointly examine the apparent low bidder's bid documentation to determine if it is authentic, legible, and generally meets the requirements of this special provision. The department will not share the BED information with, or in any other way

divulge the contents of the apparent low bidder's BED to, their subcontractors or any other party.

The department, if requested by apparent low-bidder subcontractors, will also independently examine the BED submitted by the apparent low bidder's subcontractors in the same manner as the apparent low bidder's BED was examined. Only designated representatives of the individual subcontractor and the department will be present during this examination. The department will not share the BED information with, or in any other way divulge the contents of a subcontractor's BED to, the apparent low bidder or any other party.

The department's examination of the BED will not include review of, nor will it constitute approval of, proposed construction methods, estimating assumptions, or interpretation of the contract. The examination will not alter any conditions or terms of the contract. The department will determine if the BED complies with this special provision within 4 hours after the time the BED is submitted. If the BED does not meet the requirements of this special provision, the department may reject the bid.

If the BED of the apparent low bidder meets the requirements of this special provision, the department and bidder will jointly deposit the BED at an agreed document storage facility. Place the BED in a sealed envelope or container clearly marked with the bidder’s name and address, date of submittal, project name and identification number. Representatives of the department and the bidder will deliver all bid escrow documentation and the original affidavit directly to a document storage facility, to be placed in escrow.

If the apparent low bid is withdrawn or rejected, the designated representative of the second low bidder and the department will examine and inventory the bid documentation of the second low bidder and their subcontractors in the manner specified above, then seal and deposit in escrow. If a subcontractor with a subcontract exceeding $500,000 is replaced, the contractor shall submit new BED for examination and escrow before the engineer will authorize the substitution.

The department will pay for the costs of the escrow document storage facility and will provide escrow instructions to the document facility consistent with this special provision.

The department acknowledges that the bidder considers that the BED constitutes trade secrets or proprietary information. This acknowledgment is based upon department’s understanding that the information contained in the BED is not known outside each bidder’s business, is known only to a limited extent and by a limited number of employees of bidder, is safeguarded while in bidder’s possession, and may be valuable to bidder’s construction strategies, assumptions and intended means, methods and techniques of design and construction. Except as set forth in the contract or as required by applicable Law, the department acknowledges that the BED will remain in the possession of the Escrow Agent at all times and will at no time be received by, or become the property of, the department.

Submit a copy of the affidavit below, signed under oath before a Notary Public by a representative of the bidder authorized to execute proposals. Department representatives will sign the affidavit after reviewing the BED.

The BED will remain in escrow until:

1. The bidder and the department mutually agree to release of the BED;

2. A court orders the department to provide the BED;

3. A dispute is referred to the Dispute Review Board or claims review panel; or

4. Either party seeks judicial review of a dispute.

If any of the events numbered 1-4 above occurs, the department will take possession of all relevant portions of the BED, as determined by the department, until complete resolution of the issue for which the request was made or the court order was issued. In absence of such actions, and provided the bidder signs an appropriate release, the unopened BED will be released to the bidder upon final acceptance and the expiration of all warranty periods provided by this contract.

## BID ESCROW DOCUMENTATION CERTIFICATION

Using this BID ESCROW DOCUMENTATION CERTIFICATION, the bidder certifies that the material submitted below constitutes all the documentary information used in preparation of the bid and that said bidder has fully examined the contents of the container and that they are complete. The undersigned Wisconsin Department of Transportation representatives have reviewed the BED for compliance.

BIDDER

_____
(Name of Bidder)

By:_____
(Signature*)

Title: _____

Date: _____

WITNESS

_____
(Name of Witness)

By: _____
(Signature*)

Title:_____

Date:_____

WISCONSIN DOT

_____
(Name of Department Representative)

By:_____
(Signature*)

Title: _____

Date: _____

WISCONSIN DOT

_____
(Name of Department Representative)_

By: _____
(Signature*)

Title:_____

Date:_____

(END OF BID ESCROW DOCUMENTS)

## 103.10 Mobilization Workshops

### 103.10.1 Workshop Schedule

After contract award, attend the following workshops. Each workshop is described below and will include but not be limited to the following topics.

Workshop Schedule

1. Project Kickoff and Initial Work Plan
2. Cost Reduction Incentives
3. Utility Coordination
4. Submittals
5. CPM Scheduling
6. Leadership Partnering (Initial Session)
7 Secant and Tangent Pile Drilled Shaft Construction
8. Storm Sewer Tunneling
9. Work Force Opportunities
10. Incident Crisis Communications Plan
11. Notice to Proceed

The workshop dates will be scheduled after contract award.

If necessary, the engineer may modify the workshop schedule to ensure attendance by the necessary department and contractor personnel; however, all workshops will be completed prior to issuing the Notice to Proceed.

### 103.10.2 Workshops

#### 103.10.2.1 Project Kickoff and Initial Work Plan

##### 103.10.2.1.1 General

The Project Kickoff and Initial Work Plan Workshop will provide a forum to discuss and answer questions relative to the proposal, bid schedule, and other questions in the Project Questionnaire described in standard spec 103.10.2.1.2. The Initial Work Plan Workshop will include:

1. Contractor responses to the attached Project Questionnaire.
2. Department presentation of the use of CPM scheduling on the project and presentation of the department's Master Schedule to the contractor.
3. Contractor presentation of its conceptual work plan for the project.
4. Department and contractor discussion of the level of detail and features in the Initial Work Plan and the Baseline CPM Progress Schedule.

##### 103.10.2.1.2 Project Questionnaire

Provide the following information in the order shown below. This information will constitute the "Project Questionnaire."

**General Information**
**If a Joint Venture, provide information for each member of the Joint Venture.**

1. Provide the following information about the company:
   - Firm Name
   - Address
   - Telephone and facsimile numbers; e-mail address
   - Contracting Specialties
   - Years performing work in contracting specialties
   - Geographic areas served
   - Total Management Employees and years of service
     - Project Managers
     - General Superintendents
     - Craft Superintendents
     - Engineers
     - Estimators
     - CPM Schedulers

**Construction Engineering**

- Provide/attach a copy of your Construction Project Manager's resume indicating the manager's experience in similar major construction projects. The resume shall include similar projects with references. (Note: references are only for verification of work scope performed).
- Provide (if applicable) your third-party construction engineering firms.
- Provide plan for Construction surveying

**Subcontractors**

- Attach the list of all subcontractors that are intended for this Project and the items of work they shall perform.

**Permanent Material Suppliers**

- Attach the list of all permanent material suppliers that are intended for the project.

**Quality Control** (where applicable)

- Provide the name of your Construction Quality Control firm and qualifications indicating the firms' experience in similar major construction projects. The resume shall include similar projects with references. (Note: references are only for verification of work scope performed).

- Provide/attach a copy of your Construction Quality Control Manager's resume indicating the manager's experience in similar major construction projects. The resume shall include similar projects with references. (Note: references are only for verification of work scope performed).
- List the major elements and Table of Contents of your Construction Quality Management Program.
- Provide the name of your Independent Quality Control Testing firm (Construction Quality Control Lab) and qualifications indicating the firm's experience in similar major construction projects. The resume shall include similar projects with references. (Note: references are only for verification of work scope performed).

**Organization Chart**

- Provide a functional and personnel Organization Chart showing the authority and responsibilities of each individual identified.

**Work Rules**

- Provide the plan for hours per day, days per week, and number of shifts for key elements of work; i.e. sewer tunnels, retaining wall construction, roadway excavation, bridge structures, and roadway structural section activities.

**Maintenance of Traffic**

- Provide the name of your Traffic Control Manager and qualifications indicating the firm's experience in similar major construction projects. The resume shall include similar projects with references. (Note: references are only for verification of work scope performed).
- Include an outline of your approach to the maintenance of traffic and how you shall stage the construction to meet the substantial completion schedule including planned locations for local street and freeway access into and out of the work zones for each stage of construction.
- Attach a copy of your Preliminary Schedule indicating your approach to achieving the substantial completion schedule.

**Construction**

- Provide the approach (type of equipment, number of crews, and where required ground support systems) for the following activities.
    1. Retaining wall construction by type of work
    2. Bridge demolition
    3. Roadway structural section
    4. Roadway excavation
    5. Office and yard facilities

**103.10.2.2 Cost Reduction Incentives**

The Cost Reduction workshop will identify value enhancing opportunities and consider modifications to the plans and specifications that will reduce either the total cost, time of construction or traffic congestion, without impairing, in any manner, the essential functions or characteristics of the project, including, but not limited to, service life,

economy of operation, ease of maintenance, benefits to the traveling public, desired appearance, or design and safety standards.

Submit recommendations resulting from the workshop for approval by the engineer as cost reduction incentive proposals in conformance with the provisions in standard spec 104.10 "Cost Reduction Incentive," of the standard specifications.

The department and the contractor may be able to complete the CRI Concept process, as specified in 104.10.2, during the CRI workshop.

Submit CRIs after the CRI workshop that were not introduced at the CRI workshop.

**103.10.2.3 Utility Coordination**

The Utility Coordination Workshop will define the scope and schedule of utility relocation work and the respective roles and responsibilities of the project team.

1. At a minimum, the following key personnel will attend the Utility Coordination Meeting.

   1.1 Department's Utility Coordinator.

   1.2 Contractor's Utility Coordinator.

   1.3 Designer Team's Utility Coordinator.

   1.4 Key Utility Company Representative(s)

2. At a minimum, the Utility Coordination Meeting will include a review of the following:

   2.1 Summary of all required utility relocations on the project.

   2.2 Special provisions addressing utility work.

   2.3 Sharing of contact information.

   2.4 Scheduling of work for utility relocation including critical milestones and staging for the work.

**103.10.2.4 Submittals**

The Submittal Workshop will identify the key required submittals for the project, categorize submittals into functional areas, and develop a schedule for submittals and submittal reviews. The Workshop participants will at a minimum:

1. Review the project special provisions.

2. Categorize submittals into functional areas including but not limited to:

    2.1 MSE Retaining Walls

    2.2 Temporary Shoring

    2.3 Falsework and Formwork

    2.4 Girder Shop Drawings

    2.5 Steel Transportation, Delivery and Erection

    2.6 Structure Demolition Plans

    2.7 Pile Hammers and High Capacity Piling

    2.8 Concrete/ Asphalt

    2.9 Materials

    2.10 ITS / Lighting

    2.11 Traffic Signals

    2.12 Sanitary Sewer and Water

    2.13 Permits, including OSOW and Girder Delivery

    2.14 Work Zone Ingress/Egress Plans

3. Develop a schedule for submittals.

**103.10.2.5 CPM Schedule**
See specification Baseline CPM Progress Schedule.

**103.10.2.6 Leadership Partnering**
The department will implement mandatory leadership partnering meetings on this contract.

Key members of the contractor project team, major subcontractors project team shall meet with department leadership on a bi-weekly basis. Attendance at this meeting shall include project level supervisory personnel, contractor/state level management personnel, and FHWA. Project design engineers, key project personnel of the contractor's principal subcontractors and suppliers, local government representatives, environmental regulators,

emergency service personnel, utility companies, impacted business and/or landowners, and other stakeholders may also be invited to attend, as needed.

This meeting will facilitate communication between parties and review issues and issues resolution procedures, help resolve disputes timely, satisfactorily, and as near as possible to the originating level of the dispute.

All mobilization workshop costs are incidental to the contract work.

**103.10.2.7 Secant and Tangent Pile Drilled Shaft Construction**

The Secant and Tangent Pile Drilled Shaft Construction workshop will serve as a pre-construction kickoff meeting specifically for the secant and tangent pile drilled shaft work and occur prior to any secant and tangent pile work being performed on the job, including the installation of the secant pile trial wall panel. The workshop must be attended by representatives of the prime contractor and key members of the prequalified drilling shaft subcontractor performing the secant and tangent pile installation. At minimum, key members of the drilling subcontractor includes on-site principal in charge, on-site construction supervisor and crew foremen.

The workshop agenda will include review and discussion of the drilling subcontractors submitted drilled shaft installation plan; scheduling and coordination of the secant and tangent pile drilled shaft installation work; mobilization and preparation; and subsequent work operations associated with the construction.

**103.10.2.8 Storm Sewer Tunneling**

The Storm Sewer Tunneling workshop will focus on the installation plan, access, material storage, scheduling, dewatering, shoring, maintaining existing drainage, erosion control, and subsequent work operations associated with the construction.

**103.10.2.9 Work Force Opportunities**

The Work Force Opportunities workshop will provide a venue for contractors to have meaningful dialogue with TrANS providers regarding the hiring of TrANS graduates. For the prime contractor and the nine largest subcontractors according to let value of work, provide staff with hiring authority to participate in a job-matching session during this workshop. The workshop will take place on the same day and in the same location as the pre-construction meeting. The workshop participants will at a minimum:

1. Review contractor hiring processes for general labor positions.

2. Review and listen to presentation provided by TrANS providers regarding the training program including details regarding how contractors can hire TrANS graduates.

3. Review TrANS graduate availability for working on project.

4. Meet one-on-one for two minutes with each TrANS graduate in attendance at the meeting.

**103.10.2.10 Incident Crisis Communications Plan**
The Incident Crisis Communications Plan workshop will include a "dry run" of the Crisis Communication Plan to coordinate the response to an incident within the work zone or on the freeway by the contractor, Police, Fire, EMS and other responders. Ensure that representatives of subcontractors also participate in this meeting if requested by the engineer.

**103.10.2.11 Notice to Proceed**
After all workshops are completed, the Notice to Proceed will be issued.

## 41. Contractor Notification.

*Replace standard spec 104.2.2.2(2) with the following:*

If the contractor discovers the differing condition, provide a written notice, as specified in 104.3.3, of the specific differing condition before further disturbing the site and before further performing the affected work.

**104.3.2 (Vacant)**

**104.3.3 Contractor Initial Written Notice**
*Replace standard specs 104.3.2 and 104.3.3 with the following:*

If required by standard spec 104.2, or if the contractor believes that the department's action, the department's lack of action, or some other situation results in or necessitates a contract revision, promptly provide a written notice to the engineer. At a minimum, provide the following:

1. A written description of the nature of the issue.
2. The time and date of discovering the problem or issue.
3. If appropriate, the location of the issue.

Provide the additional information specified in standard spec 104.3.5 as early as possible to assist the engineer in the timely resolution of an identified issue. The engineer will not require, in subsequent submissions, duplication of information already provided.
SEF Rev. 14_1211

## 42. Municipality Acceptance of Sanitary Sewer and Water Main Construction.

Both the department and City of Wauwatosa personnel will inspect construction of City of Wauwatosa sanitary sewer and water main under this contract.

The department will inspect construction of City of West Allis sanitary sewer and water main under this contract.

Testing and final acceptance of the sanitary sewer and water main construction will be by the Cities of Wauwatosa and West Allis.

## 43. Contractor Document Submittals.

This special provision describes minimum requirements for submitting project documents to the department. This special provision does not apply to shop drawing submittals.

Provide one electronic copy of all documents requiring department review, acceptance, or approval. Attach a completed engineer-provided transmittal sheet to each email submittal. The department will reject submittals with incomplete transmittal sheets and require re-submittal.

The department will return one reviewed, accepted, or approved original to the contractor. Additional return originals can be requested. Submit an additional original for each additional return original requested.

Submit electronic copies in Portable Document Format (PDF) to the engineer-designated folder within the department's SharePoint site, and send alerts with a link to the document via email to (an) account(s) the engineer determines. If possible, translate original documents from their native format (e.g. Word, Excel, AutoCAD, etc.) using a Portable Document Format translation routine. Scan other documents to PDF format with a minimum resolution of 600 dpi.

All costs for contractor document submittals are incidental to the contract.

## 44. Claims Process for Unresolved Changes.

*Replace standard specs 105.13.5, 105.13.6, and 105.13.7 with the following:*

**105.13.5 Review by the Department**
The department will conduct an initial review phase and a decision phase to resolve the claim. At any point in these two phases, the department may waive its review and request a dispute review board (DRB).

In the initial review phase, the contractor and the department will have up to 28 calendar days, from the contractor's submission of the claim, for the contractor to submit all additional information required and for the department to review the claim and conduct all meetings. The department may request, in writing, that the contractor submit additional information related to the claim. Submit that additional information, or notify the department in writing to base its decision on the information previously submitted. Either party may request a meeting to present their views. Before the meeting, the department will distribute written ground rules for the meeting to both parties.

Upon completion of the initial review phase, the department will notify the contractor in writing that it has begun the decision phase.

In the decision phase, the department will have up to 28 calendar days to render a written decision. The department will consider both parties' written and oral submissions and may consider other relevant information in the project records. The department will provide the following in its decision:

- A concise description of the claim.
- A clear, contractual basis for its decision that includes a reference to standard spec 104.2 on revisions to the contract and as appropriate, specific reference to language regarding the bid items in question.
- Other facts the department relies on to support its decision.
- A concise statement of the circumstances surrounding the claim and reasons for its decision. If the department rejects the claim in whole or in part, the department will explain why the claimed work is not a change to the contract work.
- The amount of money or other relief, if any, the department will grant the contractor.

In the appeal phase, the contractor will have up to 28 calendar days from the date of the department's decision to request a dispute review board hearing. Submit a written request to the department within those 28 days or the department's decision is final. If the department does not render a decision within the 28 calendar days, the department will forward the claim to the DRB as if the department had rejected the contractor's claim.

**105.13.6 Dispute Resolution**

**105.13.6.1 Definitions**

| | |
|---|---|
| **Agreement** | Formal Dispute Review Board Third-Party Agreement |
| **Dispute** | An issue, claim, change order request, or other controversy that remains unresolved following good faith negotiations between authorized representatives of the department and contractor. |
| **Dispute Review Board (DRB)** | One or three neutral individuals mutually selected by the department and contractor to review disputes and render findings and recommendations based on the contract. |
| **Project Manager** | Department construction project manager assigned to administer, oversee, and manage the project. |
| **WTBA** | Wisconsin Transportation Builders Association |

### 105.13.6.2 Dispute Review Board (DRB)

The purpose of a DRB is to resolve claims in a manner that complies with the contract, is impartial, and expedites the standard claims process. The DRB will do so by issuing recommendations that may be binding or non-binding depending on the claim amount.

It must be emphasized and firmly understood that individual DRB members are not the "representative of" or "advocate for" the party which selected them. The entire DRB will function as an objective, impartial, and independent body at all times. In order to avoid any suggestion of partiality, there shall be no individual communication in regard to the project between DRB members and employees of the contractor or department during the life of the DRB. The parties shall direct any matters needing the attention of the DRB to the chair of the DRB. The project manager or their designee will engage the DRB process.

### 105.13.6.3 Selection of Members and Agreement for Services

The department and the contractor will cooperatively establish the DRB promptly after contract execution.

#### 105.13.6.3.1 General

A three member DRB shall be established.

#### 105.13.6.3.2 Experience

All DRB members shall be experienced with the construction process including design, construction, contract administration, contract law, and resolution of construction disputes.

It is not necessary that the DRB members be intimately familiar with the specific type of construction involved in the dispute. The DRB may consult technical and legal experts if the need arises under the terms of standard spec 105.13.6.4.7 Special Services described below.

All DRB members shall have attended the one-day DRB panel member workshop offered by the Dispute Review Board Foundation, or its substantial equivalent in other training, or shall be a qualified DRB panel member in another state which has training as a prerequisite to qualification for service on DRB panels.

#### 105.13.6.3.3 Neutrality

It is imperative that the DRB members be neutral, act impartially, and be free of any conflict of interest. Individuals that fall into the following prohibitions below will not be further considered as a candidate for this contract DRB.

The term "member" also includes the member's current primary or full-time employer, and "involved" means having a contractual relationship with either the department or the contractor, such as a subcontractor, architect, engineer, or construction manager.

**105.13.6.3.4 Prohibitions; Disqualifying Relationships for Prospective Members**

1. An ownership interest in any entity involved in the construction contract, or a financial interest in the contract, except for payment for services on this DRB;
2. Previous employment by, or financial ties to, any party involved in the construction contract within a period of 6 months prior to award of the contract, except for fee-based consulting services on other projects;
3. A close professional or personal relationship with any key member of any entity involved in the construction contract which, in the judgment of either the department or the contractor, could suggest partiality; or
4. Prior involvement in the project of a nature that could compromise the prospective member's ability to participate impartially in the DRB's activities.

**105.13.6.3.5 Prohibitions; Disqualifying Relationships for Members**

1. Employment, including fee-based consulting services, by any entity involved in the construction contract.
2. Discussion concerning, or the making of, an agreement with any entity involved in the contract regarding employment after the contract is completed.

**105.13.6.3.6 Disclosure Statement**

As a part of the selection process, each prospective DRB member will be required to submit a complete disclosure statement for the approval of both the department and the contractor. Each statement shall include a resume of experience, together with a declaration describing all past, present, and anticipated or planned future relationships, including indirect relationships through the prospective member's primary or full-time employer, to this project and with the department or the contractor, or others involved in the contract, including subcontractors, suppliers, design professionals, and consultants. Disclosure of close professional or personal relationships with all key members of the department or the contractor or other parties involved in the construction contract shall be included.

**105.13.6.3.7 Statewide Standing Roster**

The department and WTBA have established a statewide standing roster of prequalified DRB members.

**105.13.6.3.8 Selection Process**

When establishing a 3-member DRB for a particular project or dispute, the department and the contractor will each select one DRB member. The two selected DRB members shall then jointly select a chair for the DRB. The disputing parties may mutually place restrictions on the chair selection. Any restriction agreed upon by the disputing parties will be communicated to the DRB members charged with selecting the chair.

After being selected, DRB member(s) must submit an updated disclosure statement to the department and contractor for review and approval. DRB members do not need to be on the Statewide Standing DRB Roster in order to be selected. However, if a DRB member (chair or non-chair) is selected from outside the standing roster, the proposed DRB

member must meet all the aforementioned criteria and disclosure requirements and both disputing parties must approve the selection.

If a party disputes the qualification of a proposed DRB member (from the Statewide Standing DRB Roster or from outside the Roster), the disputing party shall identify what disqualifies the candidate. The department and the contractor shall then jointly determine whether the candidate will be accepted on the DRB. If the candidate is rejected, the party responsible for the selection shall select another candidate and again seek approval from the other party(s).

**105.13.6.3.9 Tenure of DRB**

Once a DRB is engaged on a project, the DRB will be deemed established for any subsequent disputes that may require a DRB in accordance to standard spec 105.13.

The DRB will be dissolved as of the date of final payment to the contractor unless earlier terminated or dissolved by mutual agreement of the department and contractor.

**105.13.6.3.10 Three-Party Agreement**

After DRB member selections have been made, the DRB member(s) and authorized representatives of the department and the contractor shall execute the Formal Dispute Review Board Three-Party Agreement that sets forth the terms and conditions that apply to services provided by the DRB including procedures for standard operation of the DRB, use of the DRB in an advisory role, periodic site visits, and any other pertinent terms. The department, contractor, and all three DRB members will execute the DRB agreement within 14 calendar days after the selection of the chairperson.

**105.13.6.4 Operation**

In general, the DRB will operate in accordance to the guidelines established. The DRB shall initiate, with the department's and contractor's concurrence, new procedures or modifications to existing procedures whenever this is deemed beneficial and appropriate.

The department and the contractor will cooperate to ensure that the DRB considers disputes promptly, taking into consideration the particular circumstances and the time required to prepare appropriate documentation.

Procedures and time periods may be modified by mutual agreement of the disputing parties.

**105.13.6.4.1 Preparation of Claim File**

The department will prepare a claim file within 14 calendar days of either the contractor or the department requesting a DRB hearing. The department will include all previous documents and evidence submitted during the department initial review and decision phases. The department may add additional documents but not additional analysis or conclusions. The claim file may contain, but is not limited to the following:

- Contractor's notices and statements
- Construction engineer's written statements
- Engineer's decisions
- Supplemental information from the contractor during the department claim review
- Project photos
- Meeting minutes, correspondence, and other documents related to the claim
- Complete set of plans and specifications
- Applicable shop drawings and submittals
- The department's decision
- Contractor request for a DRB hearing

After the department has assembled the claim file, the department will provide a copy to the contractor. Provide any additional documentation to the claim file and return a complete copy of the claim file to the department within seven calendar days.

**105.13.6.4.2 DRB Claim Review**

The department will provide a copy of the completed claim file to each board member for review. If the DRB requests additional information, the appropriate party will provide the information to the DRB, but may not request reports, documents, or other information that are not normally generated by the department or the contractor in the course of construction of the project. The DRB may also visit the site to become familiar with the project and claim.

**105.13.6.4.3 Scheduling Review**

The project manager and DRB chair shall schedule the hearing. The DRB will set a date and location for a hearing no earlier than 30 calendar days but no later than 60 calendar days after the receipt of a written request for a DRB hearing.

After conferring with both the department and the contractor, the DRB Chairperson will establish a submittal schedule so that adequate time is allowed for the each party to address the other party's statements and supporting documentation before the presentation.

**105.13.6.4.4 Pre-presentation Requirements**

Concise written position statements shall be prepared by both the department and the contractor, with exhibit references to any supporting documentation. The position statement shall be submitted to each DRB member and to the other party. Submit one copy to each DRB member and 3 copies to the other disputing party at least 14 calendar days prior to the DRB hearing. Both parties will be allowed to amend or append information to their position statement up to 7 calendar days prior to the hearing. Any amendments or appendages shall be copied to the involved parties as prescribed for the position statement.

In large dollar amount disputes or disputes involving complex issues, the DRB may meet privately to review the information provided, discuss the procedures to be followed in hearing the dispute and the method of presentation to be followed. The DRB may also call a pre-meeting conference to discuss procedures with both the department and the contractor.

At least seven calendar days before the date scheduled for a hearing, each party must submit to the DRB Members and to the other party a list of the persons who will attend or represent them at the hearing.

**105.13.6.4.5 Presentation**

Unless otherwise agreed by the DRB, the department, and the contractor, the presentation will be conducted at the nearest department region office. However, any location that would be more convenient and still provide all required facilities and access to necessary documentation is satisfactory.

The department and the contractor shall have representatives at all presentations. The DRB will establish which party will make its presentation first. The department and the contractor will be allowed successive rebuttals until all aspects are fully covered. The DRB members and the department and the contractor may ask questions, request clarification, or ask for additional data. All questions from the department or contractor shall be directed to the DRB; cross examination will not be allowed. In difficult or complex cases, additional presentations may be necessary in order to facilitate full consideration and understanding of all the evidence presented by both the department and the contractor. Both the department and the contractor shall be provided adequate opportunity to present their evidence, documentation, and testimony regarding all issues before the DRB.

Unless otherwise agreed by the department and the contractor, presentations will relate to issues of entitlement only. When the department and the contractor agree that the DRB will review or give guidance on issues of monies owed as well as entitlement, both the department and the contractor will complete their presentations on entitlement before the amount of money owed is presented.

A formal transcript of the presentations will not be prepared without a formal request to the DRB. When requested by either the department or the contractor, the DRB may allow recordation and transcription by a court reporter with the cost to be allocated as agreed by the department and the contractor. Such transcript, when prepared, shall not constitute the official record of the DRB Review. The record prepared by the DRB shall be the official record of the DRB Review. The DRB may provide for audio or video recordings of the presentations for the use of the DRB only.

No participation by attorneys or legal counsel at the hearing will be permitted.

If either the department or the contractor fails to appear before the DRB on the date scheduled for the presentations, without justifiable cause, the party that was absent will be liable for any and all additional costs attributable to the cancellation of the hearing.

**105.13.6.4.6 Deliberations**

After the presentation is concluded, the DRB will confer to formulate its findings and recommendations. All DRB deliberations shall be conducted in private, with all individual views kept strictly confidential from disclosure to others.

**105.13.6.4.7 Special Services**

If at any time in the DRB process, the DRB believes that assistance from a technical expert or specialist is necessary or would facilitate resolution of the dispute, the DRB may request permission to retain such services. The DRB will provide to the department and contractor a written request detailing the following:

- Services desired
- Benefit of services requested
- Proposed service provider
- Qualifications of proposed service provider
- Estimated fees for requested services

The department and contractor must mutually agree to such assistance and approve the proposed service provider.

**105.13.6.4.8 Claims by the Subcontractor**

If the contractor's claim includes one or more subcontractor claims, the contractor shall ensure that an authorized representative with actual knowledge of the facts underlying the subcontractor claim assists in presenting the subcontractor's claim and answering questions raised by the DRB members or the department's representatives.

**105.13.6.4.9 Findings and Recommendations**

After all DRB hearings are concluded the DRB will formulate findings and recommendations. The DRB will conduct private and confidential deliberations and attempt to reach a unanimous decision. The DRB will base its findings and recommendations on the terms of the contract documents, established principles of law, statutes and regulations, the facts and circumstances of the claim, and the information provided by the parties.

Within 28 calendar days of the hearings the DRB will issue its final findings and recommendations. Claims resulting in a decision involving $400,000 or less will be binding on the parties to the extent permitted by Wisconsin law. For claims resulting in a decision involving more than $400,000, if accepted by the parties, the department will process the DRB decision for approval and will promptly process any required contract changes.

If the three-member DRB is unable to reach unanimity in its findings and recommendations, the DRB will so advise the department and the contractor in the report of the DRB. A dissenting member may, at his/her discretion, prepare a minority report to be included with the DRB report.

**105.13.6.4.10 Further Action on Decisions Exceeding $400,000**

Each party will have 45 calendar days from receipt of a final decision of the DRB exceeding $400,000 to accept or reject, in writing, the decision. If either party fails to accept or reject, in writing, that final decision of the DRB within 45 calendar days of receipt of such decision, the DRB will notify the parties that non-response is considered to

be acceptance of that decision and further administrative or judicial review will be barred. Provide notice of acceptance or rejection of the final decision to the DRB in a manner and form prescribed by the DRB. The DRB will reject any notice on a final decision not filed by either party in a timely manner. This 45-day appeal period may be extended if agreed to in writing prior to the 45-day expiration period.

**105.13.6.4.11 Advisory Dispute Review Board**
As an alternative to the standard DRB process, the department may elect to use the DRB in an advisory role to expedite the resolution of a dispute or claim. The DRB may review and hear disputes or claim issues during a regularly scheduled site visit. The DRB will offer its advice either during or promptly after the site visit.

## 45. Information to Bidders, Use of Recovered Material.

*Supplement standard spec 106.2.1 with the following:*

(3) Submit a material reuse proposal to the department prior to the project kickoff and initial work plan mobilization workshop. Do not incorporate any waste material, special waste, or industrial byproducts into the project prior to department acceptance of the material reuse proposal. The department reserves the right to deny any proposed material reuse proposal.

The material reuse proposal shall at a minimum; identify conformance to all of NR 538, demonstrate specification gradation conformance, and follow standard engineering practice for intended use.

(4) Provide the department with copies of all documentation and notifications required under NR 538.

(5) Within 60 days of placement, provide 3D model data of as-built locations of industrial byproduct reuse in LandXML v1.2 files and AutoCAD Civil 3D 2014 (or later version) TIN surface DWG file formats; provide data using horizontal datum - NAD-83 (GRS-1980) (2007), vertical datum - NAVD-1988 (2007), and coordinate projection - Wisconsin County Coordinate System in U.S. survey feet, or in other format/datum as approved by the engineer.

## 46. Dust Control Implementation Plan.

**A Description**
Develop, update, and implement a detailed Dust Control Implementation Plan (DCIP) for all land-disturbing construction activities and associated impacts both within the project site boundaries and outside the project site boundaries. Incorporate contract bid items that this article specifies into the DCIP.

**B (Vacant)**

## C Construction

### C.1 General

Take responsibility for dust control on the project as specified in standard spec 107.18. Minimize dust emissions resulting from land disturbing activities. Do not generate excessive air borne particulate matter (PM) or nuisance dust conditions. Take direct responsibility for controlling dust at all times throughout the duration of the contract, 24 hours per day, 7 days per week, including non-working hours, weekends, and holidays.

Submit a DCIP to the engineer for review at least 14 calendar days before the preconstruction conference. Coordinate with the department, if requested, to resolve DCIP related issues before the preconstruction conference. The department will either approve the DCIP or request revisions. Do not initiate any land-disturbing activities without the department's approval of the DCIP.

### C.2 Dust Control Implementation Plan Contents

Develop a DCIP tailored to the specific needs of the project. Consider potential impacts to businesses and residences adjacent to the job site. Describe in detail all land disturbing, dust generating activities. Identify strategies to prevent, mitigate, and collect excess dust. Establish clear lines of communication with the engineer to ensure that all dust control issues can be dealt with promptly.

The DCIP shall include, but not be limited to, all of the following:

1. A single contact person with overall responsibility for the DCIP development as well as surveillance and remediation of job related dust. Include the following:
    - Name, firm, address, and working-hours phone number.
    - Non-working-hours phone number.
    - Email address.
2. Individual contact persons and their respective areas of responsibility. Include the following:
    - Name, firm, address, and working-hours phone number.
    - Non-working-hours phone number.
    - Email address.
3. A site map locating project features, the job site boundaries, all ingress and egress points, air intakes and other dust-sensitive areas, and all public and private paved surfaces within and immediately adjacent to the job site. Show where specific land disturbing, dust generating activities will occur and, to the extent possible, where employing various dust control or prevention strategies.
4. A matrix showing, for each anticipated land disturbing, dust generating activity, the following:
    - Preventive measures that shall be employed.
    - The applicable contact person.
    - The contractor’s timetable and surveillance measures used to determine when remediation is required.

- The specific dust control and remediation measures that shall be employed. List the specific contract bid items that shall be used for payment. Also indicate costs that are incidental to the contract.
- Both maintenance and cleanup schedules and procedures.
- How excess and waste materials shall be disposed of.

5. A description of how off-site impacts shall be monitored and dealt with.

**C.3 Updating the Dust Control Implementation Plan**

Update the DCIP throughout the term of the contract as the engineer directs. Obtain the engineer's approval for all DCIP alterations. Also obtain the engineer's approval for DCIP routine adjustments for weather, job conditions, or emergencies that will have an impact on payment under the bid items listed in the approved DCIP.

**C.4 Dust Control Deficiencies**

Correct engineer identified dust control deficiencies within the time the engineer specifies. The engineer will allow from 30 minutes to 24 hours from the time the engineer notifies the contractor in writing of the deficiency. Deficiencies include, but are not limited to, actions or lack of actions resulting in excessive dust, failing to comply with the contractor's dust control implementation plan or associated special provisions, and failing to properly maintain equipment.

**D Measurement**

The department will measure the various bid items associated with dust control as specified in the applicable measurement subsections of either the standard specifications or other contract special provisions. The department will not measure work performed under a DCIP alteration unless the engineer specifically approves that alteration.

Measurement under the DCIP shall include, but is not limited to, the contract bid items listed below:

| | |
|---|---|
| 623.0200 | Dust Control Surface Treatment |
| 624.0100 | Water |
| 628.7560 | Tracking Pads |
| SPV.0075.0002 | Pavement Cleanup |

The department will measure work completed under other existing contract bid items if approved as a part of the DCIP. The department will consider new bid items to the contract if proposed under the DCIP. The department will not measure work required under the DCIP that is not included in contract bid items.

**E Payment**

All costs associated with the development and updating of the DCIP are incidental to the contract. The department will pay separately for the work required to implement the actions approved in the DCIP under the contract bid items approved as a part of the DCIP. All other costs associated with work approved under the DCIP are incidental to the contract.

SEF Rev. 14_1211

## 47. ATR Control of Materials – ATR 40-0001.

*Supplement standard spec 106.2 with the following:*

**106.2.5 Department Furnished Equipment**
A portion of equipment to be installed by the contractor will be furnished by the department. This department-furnished equipment includes the following:

| Department-furnished Items |
|---|
| Wavetronix HD 125 Unit |
| Wavetronix HD 125 Cable (40') |
| Wavetronix Click 200 Module |
| Wavetronix Click 202 Module |
| Pole Mounted Cabinet |
| ATR Controller Cabinet |
| Piezoelectric Axle Sensor |
| U-Bolt 5/8"x8" |
| Cellular Antenna and Cable |
| Cabinet Heater |
| Heater Thermostat |

All other materials needed are the responsibility of the contractor.

Pick up all department-furnished equipment from the SE Region West Allis Service Facility at 935 S. 60th Street, West Allis, WI, 53214 at a mutually agreed upon time. Contact Mike Prebish at (414) 266-1170 to coordinate pick up of equipment. Transport the equipment between the West Allis Service Facility and the field or interim location(s).

## 48. Project Site Air Quality.

Because fine particulate matter levels for Milwaukee, Racine and Kenosha Counties are typically close to $PM_{2.5}$ limits and the project is in a non-attainment area for the federal 8-hour ozone standard, contributions from construction activities can have a major impact well beyond the project limits. Take practical measures to mitigate the impact of operating construction equipment on the air quality in and around the project site.

Voluntarily establishing the staging zones for trucks waiting to load and unload is encouraged by the department. Locate staging zones where idling of diesel powered equipment will have minimal impact on abutting properties and the general public. The department will make signs available to help identify these zones. Have truckers queue up in these zones whenever it is practical. The department further encourages drivers to shut down diesel trucks as soon as it appears likely that they will be queued up for more than ten minutes. Notify employees and sub-contractors about fueling and engine idling.




**Portable Concrete Crusher Plants**
Portable concrete crusher plants may need a NR 440 Concrete Crusher Plant Air Permit for air emissions. Please contact Mike Griffin, Wisconsin Department of Natural Resources, Air Compliance Engineer (414) 263-8554 to request additional information and permit application materials. Complete permit applications may take 3 months to process.
SEF Rev. 14_1212

## 49. Maintaining Drainage.

Maintain drainage at and through worksite during construction in accordance to standard specs 107.22, 204, 205 and 520.

Use existing storm sewers, existing culvert pipes, existing drainage channels, temporary culvert pipes, or temporary drainage channels to maintain existing surface and pipe drainage. Pumps may be required to drain the surface, pipe, and structure discharges during construction. Costs for furnishing, operating, and maintaining the pumps is considered incidental to the project.

**Dewatering (Mechanical Pumping) for Bypass Water (sediment-free) Operations**
If dewatering bypass operations are required from one pipe structure to another downstream pipe structure or from the upstream to downstream end of a culvert and the bypass flow is not transporting sediments (sand, silt, and clay particles) from a tributary work site area, bypass pumping operations will be allowed provided that the department has been made aware of and approves operation. When pumping bypass flows, the discharge location will need to be stable and not produce any erosion from the discharge velocity that would cause release of sediment downstream.

**Dewatering (Mechanical Pumping) for treatment Water (sediment-laden) Operations**
If dewatering operations require pumping of water containing sediments (sand, silt, and clay particles), the discharge will not be allowed to leave the work site or discharge to a storm water conveyance system without sediment removal treatment. Refer to article Erosion Control in these special provisions for additional requirements.
SEF Rev. 15_0209

## 50. Notice to Contractor – OCIP Exclusions.

The Owner Controlled Insurance Program (OCIP) insurance coverage excludes environmental/abatement work, including but not limited to hazardous materials/chemicals, lead and other materials considered hazardous – see Article – Owner Controlled Insurance Program for additional information. Environmental/abatement work must be performed by a qualified contractor and the work will not be covered under OCIP. The contractor performing Environmental/abatement work may potentially be enrolled in the OCIP if also performing other work not excluded from the OCIP umbrella. The qualified subcontractor must carry Construction Pollution Liability insurance with limits of at least $1,000,000 per Occurrence and $2,000,000 Aggregate.

Report only payroll from non-environmental work under the OCIP. Do not report payroll generated from environmental/abatement work.

Direct questions regarding this or any other aspects of OCIP to Chris Luttrell at (608) 381-2340, or chris.luttrell@dot.wi.gov.
SEF Rev. 14_0529

## 51. Owner Controlled Insurance Program.

Standard spec 107.26, "Standard Insurance Requirements" is deleted in its entirety and the following standard spec 107.26 is substituted thereof:

**107.26 Standard Insurance Requirements**

**107.26(1)(a) Owner Controlled Insurance Program**

**1. Overview**. The State of Wisconsin, Department of Transportation ("the WisDOT") has arranged with Aon Risk Solutions, (the "OCIP administrator") for this Project to be insured under its Owner Controlled Insurance Program ("OCIP"). The OCIP is more fully described in the Zoo Interchange manual for the Owner Controlled Insurance Program (the "Insurance Manual") and the Safety and Health Plan Manual that are incorporated in this Special Provision and the Contract by this reference. Parties performing labor or services at the Project Site (as defined by the OCIP Policies) are eligible to enroll in the OCIP unless the party is an excluded party (as defined below). The OCIP will provide to enrolled parties(as defined below) workers' compensation and employer's liability insurance, commercial general liability insurance, Builders Risk and Excess Liability insurance as summarily described below in connection with the performance of the Work ("OCIP coverage's").

**2. Enrolled Parties and Their Insurance Obligations.** OCIP coverage applies only to Enrolled Parties. Enrolled Parties include the WisDOT and its employees, non-excluded Contractors and Subcontractors of all tiers who enroll in the OCIP, all employees of Enrolled Contractor's and Subcontractor's who perform Work at the Project Site, and such other persons or entities that the WisDOT, in its sole discretion, may designate (each such party who is insured under the OCIP is collectively referred to as an "Enrolled Party").

Enrolled Parties shall obtain and maintain, and shall require each of its Subcontractors to obtain and maintain, the insurance coverage specified in 107.26(1)(a) 8 below.

**3. Excluded Parties and Their Insurance Obligations.** OCIP coverage's do not apply to the following "Excluded Parties":

a. Hazardous materials remediation, removal and/or transport companies;

b. Vendors *, suppliers, fabricators, material dealers, truckers**, haulers, drivers and others who merely transport, pickup, deliver, or carry materials, personnel, parts or equipment or any other items or persons to or from the Project;

* WisDOT is requiring all vendors who perform maintenance on an enrolled contractor's equipment to be enrolled in the OCIP. Please see "WisDOT OCIP Enrollment Guidance Relating to Service Vendors" to determine whether they will be enrolled per project id number or on a Miscellaneous blanket basis.

** Truckers that come on site must remain in the cab of the vehicle.

Refer to the "Enrollment Matrix" which clearly outlines the requirements contingent upon the category that the entity falls under, such as: Contractor; Subcontractor; Consultant; Visitor; etc.

c. Sanitary disposal facility providers, if the only function is to drop off the units and pick them up later, they are material suppliers and are excluded. If the company also services/cleans the units on site, that is no longer being a material supplier. (Refer to "Enrollment Matrix", Vendors Providing Maintenance On Site).

d. Contractors and Subcontractors of any tier that do not perform any actual labor on the Project site;

e. Any party or entity not specifically identified in this special provision or excluded by the WisDOT as permitted by law, even if otherwise eligible.

f. If you are not employed by an Enrolled Party, but performing services of an Excluded Party, you are not covered by the OCIP.

Excluded Parties and parties not enrolled in the OCIP shall obtain and maintain, and shall require each of its excluded Subcontractors to obtain and maintain, the insurance coverage specified in standard spec 107.26(1)(a) 8 below and in the Insurance Manual. Excluded Parties shall comply with all of the safety requirements pursuant to 107.26(1)(a) 16.

4. **OCIP Insurance Policies Establish OCIP coverage's**. The OCIP coverage's and exclusions summarized in this special provision and the other contract documents are set forth in full in their respective insurance policy forms. The summary descriptions of the OCIP coverage's in this special provision or the Insurance Manual are not intended to be complete or to alter or amend any provision of the actual OCIP coverage's. In the event any provision of this special provision, the Insurance Manual, or the contract documents, conflicts with the OCIP insurance policies, the provisions of the actual OCIP insurance policies shall govern.

5. **Summary of OCIP Coverage's**. OCIP coverage's will apply only to those operations of each Enrolled Party performed at the Project Site (as defined in the OCIP insurance Policies) in connection with the Work and only to Enrolled Parties that are eligible for the OCIP.

   The OCIP coverage's are primary insurance for all Enrolled Parties for occurrences during the policy period at the Project Site (as defined in the OCIP Policies). The OCIP will provide at least the following insurance to Enrolled Parties:

**Summary of OCIP Coverages**

*This is a brief description of OCIP Insurance Coverage. Enrolled Parties should refer to the actual policies for details concerning coverage, exclusions and limitations.*

a. Workers' Compensation Insurance -Statutory Limit including Jones Act and USL&H coverage, as applicable.

b. Employer's Liability Insurance $1,000,000 Bodily Injury by Accident, each accident $1,000,000 Bodily Injury by Disease, each employee $1,000,000 Bodily Injury by Disease, policy limits

c. Commercial General Liability (ISO Occurrence Form – Limits Shared By All Insureds) $2,000,000 Each Occurrence Limit (Annual Limit) $2,000,000 Personal/Advertising Injury Aggregate $4,000,000 General Aggregate Limit for all Enrolled Parties (Annual Limit)

$4,000,000 Products and Completed Operations Aggregate for all Enrolled Parties (Single Limit Applies to Entire Products and Completed Operations Extension)

10 yr. Products and Completed Operations Extension

d. The OCIP Commercial General Liability policy will not provide coverage for any claim that could be covered under a property policy or Builder's Risk policy.

e. Excess Liability insurance (over Employer's Liability and General Liability – Limits Shared by All Insureds)

$100,000,000 Each Occurrence Limit

$100,000,000 Aggregate (Annual Limit)

$100,000,000 Products and Completed Operations Aggregate Limit (Single Limit Applies to Entire Products and Completed Operations Extension).

f. Builder's Risk Insurance Coverage:

*This is a brief description of Builder's Risk Insurance Coverage. Contractor should refer to the actual policies for details concerning coverage, exclusions and limitations.* The Builder's Risk insurance covers insures property, including materials, supplies, machinery, fixtures and equipment which will become a permanent part of the Work (excluding road work at grade level) in the course of construction.

***The Builder's Risk coverage insures WisDOT and Enrolled Parties.***

*Builders Risk:*

Limit

Each Occurrence Limit
$100,000,000

*Builder's Risk Obligation**:***

1. Contractor or Subcontractor shall pay to the WisDOT's designee within five (5) days
2. Written notice a maximum of up to twenty-five thousand dollars ($25,000.00) for each loss payable under the Builder's Risk Policy attributable to Contractor's Work, acts or omissions, or the Work, acts or omissions of any of Contractor's Subcontractors, or any other entity or party for whom contractor may be responsible ("builder's risk obligation").

**6. The WisDOT's Insurance Obligations.**

a. The WisDOT will pay the costs of premiums for the OCIP coverage's and WisDOT will receive or pay, as the case may be, all adjustments to such costs, whether by way of dividends, retroactive adjustments, return premiums, other moneys due, audits or otherwise.

b. The WisDOT assumes no obligation to provide insurance other than that specified in this special provision and the OCIP insurance policies.

c. Except as provided by applicable law, the WisDOT's furnishing of OCIP coverage's will in no way relieve or limit, or be construed to relieve or limit, contractor or any of its Subcontractors of any responsibility, liability, or obligation imposed by the contract documents, the OCIP insurance policies, or by law, including without limitation any indemnification obligations which contractor or any of its Subcontractors has to the WisDOT there under. The WisDOT reserves the right at its option, to furnish other insurance coverage of various types and limits provided that such coverage is not less than that specified in the contract documents.

**7. Contractor's OCIP Obligations.** Contractor shall:

a. Assign to WisDOT the right to receive all such adjustments, and shall require that each of its Subcontractors of every tier assigns to WisDOT the right to receive all such adjustments.

b. Incorporate the terms of this special provision in all subcontract agreements.

c. Enroll and maintain enrollment in the OCIP, and shall ensure that each non-Excluded subcontractor, enrolls and maintains enrollment in the OCIP. Enrollment shall take place within five days of a receipt of a Notice to Proceed, and prior to commencement of work. Comply with all of the administrative, safety, insurance, and other requirements outlined in this special provision, the Insurance Manual, the OCIP insurance policies, the Safety and Health Plan Manual, or elsewhere in the contract documents.

d. Provide each of its Subcontractors with a copy of the Insurance Manual and ensure Subcontractor compliance with the provisions of the OCIP insurance policies, the Insurance Manual, this special provision, and the contract documents. The failure of (a) the WisDOT to include the Insurance Manual in the bid documents or (b) Contractor to provide each of its eligible Subcontractors with a copy of same shall not relieve Contractor or any of its Subcontractors from any of the obligations contained therein.

e. Acknowledge, and require all of its Subcontractors to acknowledge in writing, that the WisDOT and the OCIP administrator are not agents, partners or guarantors of the insurance companies providing coverage under the OCIP (each such insurer, an "OCIP insurer") and that the WisDOT is not responsible for any claims or disputes between or among Contractor, its Subcontractors, and any OCIP insurer(s). Any type of insurance coverage or limits of liability in addition to the OCIP coverage's that Contractor or any Subcontractor requires for its or their own protection, or that is required by applicable laws or regulations, shall be Contractor's or its Subcontractor's sole responsibility and expense and shall not be billed to the WisDOT.

f. Cooperate fully with the OCIP administrator and the OCIP insurers, as applicable, in its or their administration of the OCIP.

g. Provide, within five business days of the WisDOT's or the OCIP administrator's request, all documents or information as requested of Contractor or its Subcontractors. Such information may include but not be limited to, payroll records, certified copies of insurance coverage's, declaration pages of coverage's, certificates of insurance, underwriting data, prior loss history information, insurance audits, safety records or history, OSHA citations, or such other data or information as the WisDOT, the OCIP administrator, or OCIP insurers may request in the administration of the OCIP, or as required by the Insurance Manual.

h. Pay to the WisDOT's designee within five (5) days of written notification, a sum of up to **$10,000** of each claim, including court costs, attorneys fees and costs of defense for property damage to the extent losses are insured under the OCIP Commercial General Liability policy for those losses that are attributable to Contractor's Work, acts or omissions, or the Work, acts or omissions of any of its Subcontractors, or any other entity or party for whom Contractor may be responsible ("contractor General Liability obligation"). The contractor General Liability obligation will not be insured by the OCIP Coverage's.

**8. Additional Insurance Required From Enrolled Parties and Excluded Parties.** Contractor shall obtain and maintain, and shall require each of its Subcontractors of every tier to obtain and maintain, the insurance coverage specified in this Section in a form and from insurance companies reasonably acceptable to the WisDOT. The insurance limits may be provided through a combination of primary and excess policies, including the umbrella form of policy. The insurance required by this Section shall conform to the WisDOT's requirements outlined in the Insurance Manual and be written by companies authorized to do business in the state of Wisconsin with an **AM Best rating of A-or better**. Contractor shall provide certificates of insurance coverage to the WisDOT as required below and by the Insurance Manual.

As to Enrolled Parties, the Workers' Compensation, Employer's Liability, and Commercial General Liability insurance required by this section shall only be for operations away from the Project Site (as defined by OCIP Policies). The cost of providing the required insurance coverage and limits is incidental to the contract. The department will make no additional or special payment for providing insurance.

**TYPE OF INSURANCE MINIMUM LIMITS REQUIRED**

1. Commercial General Liability insurance shall be endorsed to include Blanket Contractual Liability coverage.

   a. $2,000,000 Combined Single Limits per occurrence with an annual aggregate limit of not less than $4,000,000.

   b. The OCIP Coverage's shall exclude blasting or explosion operations. If blasting or explosion operations are used in connection with the Work, Commercial General Liability insurance shall not contain an exclusion for blasting or explosion and shall be provided in limits established by the WisDOT at the time such blasting or

explosion methods are elected. Such coverage shall apply to operations whether the operations occur on the Project site or away from the Project site.

c. Wisconsin Department of Transportation, their respective officers, agents and employees, and any additional entities as the WisDOT may request as additional insureds must be named as an Additional Insured which shall include: i) liability arising out of the Work performed by the named insured; ii) liability arising out of the supervision of the Work performed by or operations of the named insured; and iii) liability of the acts or omissions of the Additional Insureds relating to Work performed by the named insured for the Project, except for sole negligence of the Additional Insureds iv) will state that coverage is afforded on a primary and non-contributory basis.

d. Ongoing Construction Operation(s) in effect at all times while work is being performed by Contractor;

e. Subcontractors and Independent Contractors (if any);

f. Products and Completed Operations, including coverage applicable to additional insureds (as required by this agreement) with Completed Operations coverage to remain in force, whether by endorsement or renewal of coverage, including the Contractor, any party required to be indemnified by this Contract and any other party required by this Contract to be named as an additional insured, for at least two (2) years from the date of final completion of the Project and WisDOT's acceptance of the work; and

g. Explosion, collapse, and underground hazards.

h. Contractual Liability (insured contract) coverage sufficient to meet the requirements of this Contract (including defense costs and attorney's fees assumed under contract);

i. Personal and Advertising Injury Liability coverage (with the standard contractual and employee exclusions deleted);

j. Notice and Knowledge of Occurrence conditions limited to the knowledge of relevant corporate officers or risk managers with an Unintentional Errors and Omissions provision (providing that the insurer may not deny coverage unless it can show that it has been prejudiced by a failure of the insured to comply with a condition of the policy); and

k. CG 22 79 07 98 (or equivalent) is the only acceptable Professional Liability Exclusion.

l. Operations performed within 50' of railroad

m. Contractors must provide their own insurance for owned, leased, rented and borrowed equipment, whether such equipment is located at a Project Site or "in transit". Contractors are solely responsible for any loss or damage to their personal property including, without limitation, property or materials created or provided under the Contract until installed at the Project Site, Contractor tools and equipment, scaffolding and temporary structures.

2. Workers' Compensation and Employer's Liability insurance.

a. Workers' Compensation Limits: Statutory Limits

b. Employer's Liability limits:

$1,000,000 Bodily Injury by Accident, each accident $1,000,000 Bodily Injury by Disease, each employee $1,000,000 Bodily Injury by Disease, policy limits

Terms and conditions shall include:

- USL&H – where applicable.
- Jones Act – where applicable.
- All states endorsement -where applicable.

3. Commercial Automobile Liability insurance as specified by Insurance Services Office (ISO), form CA 00 01, symbol 1 (any auto) with the following limits and endorsements:

a. No Trucking or Hauling: $1,000,000 Each Accident

b. Trucking or Hauling (Non Hazardous Materials): $2,000,000 Each Accident

c. Trucking or Hauling Hazardous Materials: $5,000,000 Each Accident with an MCS 90 Endorsement and ISO Endorsement CA 99 48.

4. For any work over water, whether deemed navigable or otherwise, Contractors Pollution Liability insurance with $2,000,000 per occurrence and $2,000,000 aggregate policy limits.

5. Aviation and/or Watercraft Liability insurance, as appropriate, including hull and protection and indemnity for watercraft, or other insurance, in form and with limits of liability and from an insuring entity reasonably satisfactory to the WisDOT.

Contractor's failure to procure or maintain the insurance required by this Section and to assure all its Subcontractors of every tier maintain the required insurance during the entire term of the contract shall constitute a material breach of this contract under which the WisDOT may immediately suspend or terminate this contract or, at its discretion, procure or renew such insurance to protect the WisDOT's interests and pay any and all premiums in connection therewith, and withhold or recover all monies so paid from the Contractor.

Contractor shall provide the WisDOT with certificates of insurance as evidence that required coverage's for insurance detailed in this section are in force. The bidder shall provide certificates of insurance in their pre-qualification statement as specified in standard spec 102.1.

Contractor shall notify the WisDOT at least 60 calendar days before a cancellation or material change in coverage and only obtain coverage from insurance companies licensed to do business in the state that have an AM Best rating of A- or better. The cost of

providing the required insurance coverage and limits is incidental to the contract. The WisDOT will make no additional or special payment for providing insurance.

The above insurance requirements shall apply with equal force whether the Contractor or a Subcontractor, or anyone directly or indirectly employed by either, performs the work under the Project.

**9. Additional Insureds:**

All insurance required by this agreement (excluding only workers compensation insurance) shall name WisDOT, all parties required to be indemnified by this Contract and all other parties as reasonably requested by the WisDOT, as additional insureds. All policies (including primary, excess and/or umbrella) must provide that coverage shall be primary and non-contributory to any insurance maintained by the Contractor or the additional insured, all of which shall be stated on the Certificate of Insurance provided by the Contractor. The Additional Insured Endorsement shall be on Form CG 20 10 11/85, or CG 20 33 10/01 plus CG 20 37 10/01, or equivalent, and shall include ongoing and completed operations coverage, which shall not contain any restrictions**.**

IN THE EVENT THAT THE LAW OF THE STATE IN WHICH THE PROJECT IS LOCATED (OR APPLICABLE LAW) LIMITS THE ADDITIONAL INSURED COVERAGE THAT WISDOT MAY REQUIRE FROM THE CONTRACTOR, THEN THE CONTRACTOR SHALL BE REQUIRED TO OBTAIN ADDITIONAL INSURED COVERAGE TO THE FULLEST EXTENT OF COVERAGE AND LIMITS ALLOWED BY APPLICABLE LAW AND THIS CONTRACT SHALL BE READ TO CONFORM TO SUCH LAW.

**10. Contractor Representations and Warranties to the WisDOT.** Contractor represents and warrants to the WisDOT or behalf of itself and its Subcontractors:

a. That all information it submits to the WisDOT or the OCIP administrator shall be accurate and complete.

b. That Contractor, on behalf of itself and its Subcontractors, has had the opportunity to read and analyze copies of the OCIP binders and specimen policies that are on file in the WisDOT's office. Any reference or summary in the contract, this special provision, the Insurance Manual, or elsewhere in any other contract document as to amount, nature, type or extent of OCIP coverage's and/or potential applicability to any potential claim or loss is for reference only. Contractor and its Subcontractors have not relied upon said reference but solely upon their own independent review and analysis of the OCIP coverage's in formulating any understanding and/or belief as to amount, nature, type or extent of any OCIP coverage's and/or its potential applicability to any potential claim or loss.

c. That the costs of OCIP coverage's were not included in Contractor's bid or proposal for the Work, the contract price, and will not be included in any change order, change modification, or any request for payment for the Work or extra work. The "costs of OCIP coverage's" is defined as the dollar amount of premiums, costs and fees the

Contractor and its Subcontractors would have paid its insurance carrier to insure the operations and exposures which are being insured under the OCIP.

d. That Contractor acknowledges that the WisDOT will not pay or compensate Contractor or any Subcontractor, in any manner, for costs of OCIP coverage's or for "insurance costs" except as specifically required to be maintained by Contractor by the terms of this special provision.

**11. Severability of Interests (Cross Liability):**

All insurance required by this agreement (excluding only workers compensation insurance) shall include a provision or be endorsed to provide that, inasmuch as the policy is written to cover more than one insured, all terms, conditions, insuring agreements and endorsements, with the exception of limits of liability, shall operate in the same manner as if there were a separate policy covering each insured. No cross liability exclusions are permitted and there may not be any restrictions in any policies that limit coverage for a claim brought by an additional insured against a named insured. Also, there shall not be any provision in any insurance policy which excludes or conditions coverage on the existence of a contract or other agreement requiring insurance.

**12. Breach of Insurance Requirements:**

The Contractor's failure to obtain and maintain insurance coverages as required by this agreement shall constitute a material breach of the Contract. In such event WisDOT may at its option: (i) terminate the Contractor for default; or (ii) purchase such coverage and backcharge the premium and associated costs to the Contractor; or (iii) at their respective option, WisDOT and/or an additional insured can require the Contractor and/or its Subcontractors to pay for attorney's fees, expenses, damages and liability as a result of any claim or lawsuit to the extent coverage would have been provided to them under the Contractor's insurance but for the Contractor's breach WisDOT has the right to backcharge the Contractor for such sums. Furthermore, to the extent of their respective interest, the Insurers of those entities that were to be included as additional insureds are deemed to be third-party beneficiaries of the insurance procurement obligation.

**13**. **Subcontractor**:

Before permitting any Subcontractor to perform work under a subcontract, the Contractor shall require by written contract that the Subcontractor maintain insurance in like form and amounts to that required herein. The Contractor shall be responsible to ensure that each Subcontractor maintains insurance in like form and amounts and shall Provide evidence of same if requested. Contractor shall provide copies of its Subcontractor's certificates of insurance coverage to WisDOT or the OCIP Administrator upon request.

**14. Notice of Cancellation:**

All insurance coverages required by this agreement shall contain a provision that the coverage afforded thereunder cannot be cancelled, non-renewed, allowed to lapse, or have any restricted modifications added unless at least thirty (30) days prior written notice has

been given to WisDOT. The Contractor is responsible to provide replacement coverage conforming with the requirements of this agreement in the event of any cancellation, non-renewal or modification of any insurance coverages required by this agreement.

**15. Limits of Insurance:**

The Contractor's insurance coverage and any additional insured coverage provided to WisDOT and any additional insured shall be for the full amount of any loss up to the policy(s) limits of liability and shall not be limited to the minimum insurance requirements of this Contract. The Contractor is responsible for notifying its insurance carriers in the event of a loss or potential loss involving coverage for the additional insureds. However, this does not prohibit any additional insureds from reporting a claim directly to the Contractor's insurance carriers.

**16. Deductibles/Denial of Claims:**

The Contractor shall be responsible, at no additional cost to WisDOT, for the payment of any deductibles or self-insured retention in connection with the insurance coverages required by this agreement, both for itself and all additional insureds. Any self-insured retention or deductible must be declared in writing at the time the Contractor submits its bid and must be specifically approved by WisDOT prior to execution of the Contract. The Contractor shall be responsible for any loss arising out of coverage denial by its insurance carrier. The Contractor may not procure policies that limit who may pay the SIR or deductible; rather, any SIR shall be payable by either the Contractor or the Subcontractor and the Contractor may not have a policy that prevents WisDOT from accessing or triggering coverage unless the SIR is paid by the Contractor. Contractor shall also ensure that similar conditions are incorporated into all subcontracts. In the event that WisDOT is required to pay any deductible and/or SIR to access any insurance policy, Subcontractor shall promptly reimburse the Contractor for such payment.

**17. No Waiver of Insurance Requirements:**

IT IS EXPRESSLY AGREED BETWEEN WISDOT AND THE CONTRACTOR THAT THE FAILURE OF WISDOT TO REQUIRE OR VERIFY COMPLETE AND TIMELY PERFORMANCE OF THE CONTRACTOR'S OBLIGATIONS UNDER THIS CONTRACT SHALL NOT BE A WAIVER BY WISDOT OF ANY RIGHT OF WISDOT TO REQUIRE THE CONTRACTOR TO COMPLY WITH THESE INSURANCE REQUIREMENTS AND/OR TO SEEK DAMAGES BECAUSE OF THE CONTRACTOR'S FAILURE TO COMPLY WITH THE INSURANCE REQUIREMENTS IN THIS CONTRACT.

**18. Audits.** Contractor agrees that the WisDOT, the OCIP administrator, and/or any OCIP insurer may audit Contractor's or any of its Subcontractor's Project payroll records, books and records, insurance coverage's, insurance cost information, or any other information that Contractor provides to the WisDOT, the OCIP administrator, or the OCIP insurers to confirm their accuracy and to assure that costs of OCIP coverage's are not included in any payment for the work.

**19. The WisDOT's Election to Modify or Discontinue OCIP.** The WisDOT may, for any reason, modify the OCIP coverage's, discontinue the OCIP, or request that Contractor or any of its Subcontractors withdraw from the OCIP upon thirty (30) days written notice. Upon such notice Contractor and/or one or more of its Subcontractors, as specified by the WisDOT in such notice, shall obtain and thereafter maintain at the WisDOT's expense, Contractor Maintained Coverages (or a portion thereof as specified by the WisDOT) of the OCIP coverage's. The form, content, limits of liability, cost, and the insurer issuing such replacement insurance shall be subject to the WisDOT's approval.

**20. Withhold of Payments.** The WisDOT may withhold from any payment owing to Contractor the costs of OCIP coverage's if included in a request for payment. In the event the WisDOT audit of Contractor's records and information as permitted in the Contract, this special provision, or other contract documents reveals a discrepancy in the insurance, payroll, safety, or any other information required by the contract documents to be provided by Contractor to the WisDOT, or to the OCIP administrator, or reveals the inclusion of costs of OCIP coverage's in any payment for the work, the WisDOT will have the right to full deduction from the Contract Price of all such costs of OCIP coverage's and all audit costs. Audit costs will include but not be limited to the fees of the OCIP administrator, and the fees of attorneys and accountants conducting the audit and review. If the Contractor or its Subcontractors fail to timely comply with the provisions of this special provision or the requirements of the Insurance Manual, the WisDOT may withhold any payments due Contractor and its Subcontractors until such time as they have performed the requirements of this special provision. Such withholding by the WisDOT will not be deemed to be a default hereunder.

**21. Waiver of Claim and Waiver of Subrogation:** Where permitted by law, Contractor hereby waives all rights of recovery under subrogation because of deductible clauses, inadequacy of limits of any insurance policy, limitations or exclusions of coverage, or any other reason against the WisDOT, the State of Wisconsin and any of its Agencies or Officer's, Agents or employees including without limitation, the OCIP administrator, its or their officers, agents, shareholders or employees of each, if any, and any other Contractor or Subcontractor performing work or rendering services on behalf of the WisDOT in connection with the planning, development and construction of the Project, and Contractor shall require that all Contractor maintained insurance coverage related to the work include clauses providing that each insurer shall waive all of its rights of recovery by subrogation for claims described above.

**22. Waiver of Subrogation.** Where permitted by law, Contractor shall also require that all Contractor maintained insurance coverage related to the work include clauses providing that each insurer shall waive all of its rights of recovery by subrogation against the WisDOT, the State of Wisconsin and any of its Agencies or Officer's, Agents or employees including without limitation, the OCIP administrator, its or their officers, agents, shareholders or employees of each, if any. Contractor shall require similar written express waivers and insurance clauses from each of its Subcontractors. A waiver of subrogation shall be effective as to any individual or entity even if such individual or entity (a) would otherwise have a duty of indemnification, contractual or otherwise, (b) did

not pay the insurance premium directly or indirectly, and (c) whether or not such individual or entity has an insurable interest in the property damaged.

**23. Conflicts**. In the event of a conflict, the provisions of this special provision shall govern, then the provisions of the contract and its other related contact documents, then the provisions of the Insurance Manual.

**24. Safety.** Contractor shall be solely responsible for safety on the Project and safety relating to the Work. Contractor shall establish a safety program that, at a minimum, complies with all local, state and federal safety standards, and any safety standards established by the WisDOT for the Project, including the Project Safety and Health Plan Manual.
SEF-ZOO IC 13_0114

## 52. Subletting the Contract.

*Replace standard spec 108.1.1 (3) with the following:*

If proposing to have a party other than a subcontractor perform work, notify the engineer and submit details of this arrangement in writing. The engineer will determine if that arrangement constitutes subcontracting. Submit copies of all other agreements between any parties regarding the performance of work under the contract with the Request to Sublet.
SEF Rev. 13_0225

## 53. Incentive/Disincentive for Interim Completion of Work Ramp NE, Item 108.3100.S.0003.

**A General**
This item shall consist of either an incentive payment or a disincentive as specified below for the opening of Structure B-40-853 and the pavement for the system ramp N-E that carries traffic from southbound USH 45 to eastbound IH 94.

The contractor shall complete all of the work necessary to open Structure B-40-853 and the pavement for the system ramp N-E that carries traffic from southbound USH 45 to eastbound IH 94, including pavement, shoulders, pavement marking, signs, and other necessary items to transition into the next stage for the roadway on this contract prior to 180 calendar days from the date of closure or such extended time as may be allowed.

The completion time allowed for this contract is based on an expedited work schedule.

Under this Incentive/Disincentive plan, the department will not grant time extensions for the following:

1. Severe weather as specified in standard spec 108.10.2.2.
2. Labor disputes that are not industry wide.
3. Delays in material deliveries.

Each day shall be defined as a 24 hour period beginning at 12:01 AM.

The maximum incentive payment, as shown on the Schedule of Items, is for department accounting purposes. The actual incentive payment the contractor may receive shall be in accordance to section B of this provision.

Incentive payments will not be considered as part of the money value of the work completed for computing time extensions.

**B Incentive Payment**

The contractor shall be entitled to an incentive payment for completion of all of the work necessary to open Structure B-40-853 and the pavement for the system ramp N-E that carries traffic from southbound USH 45 to eastbound IH 94 on this contract prior to 180 calendar days from the date of closure or such extended time as may be allowed.

The incentive payment shall be paid at the rate of $10,000 per calendar day for each day or portion thereof, of completion prior to 180 calendar days from the date of closure. The maximum amount of incentive payment shall not exceed $300,000.

**C Disincentive Pay Reduction**

Should the contractor fail to complete all of the work necessary to open Structure B-40-853 and the pavement for the system ramp N-E that carries traffic from southbound USH 45 to eastbound IH 94 under this contract prior to 180 calendar days from the date of closure, or within such extended time as may be allowed, the contractor shall be liable to the department for a pay reduction in the amount of $10,000 per day or portion thereof, for each calendar day after 180 calendar days from the date of closure that work remains incomplete.

If contract time expires before completing all work specified in the contract, additional liquidated damages according to standard spec 108.11 will be affixed in addition to the disincentive pay reduction.

**D Measurement and Payment**

Incentive/Disincentive for interim Completion of Work will be measured by the calendar day and will be paid for at the contract unit price per calendar day.

The unit price per day based on the incentive pay adjustment shall be compensation in full for completing the work as hereinbefore specified.

The unit price per day based on the disincentive pay reduction shall be assessed for failing to complete all the work as hereinbefore specified.

## 54. Pay Plan Quantity.

### A Bid Items Designated as Pay Plan Quantity

*Replace standard spec109.1.1.2 with the following:*

If the schedule of items designates a bid item with a **P** in the title, the department will not measure that bid item. The department will use the plan quantity, the approximate quantity shown on the schedule of items, for payment unless a contract revision affects a designated bid item.

If the engineer revises the contract under standard spec 104.2, the department will adjust the quantity of designated items that are affected by the revised work. The engineer will adjust the affected quantity, with a contract modification as defined in standard spec 101.3, regardless of the magnitude of the revised work, which may result in either an increase or a decrease from the quantity shown on the schedule of items. The department will measure revised work as specified in standard spec 109.1.1.1. If the engineer revises the contract to eliminate a designated item, the engineer will not pay for the designated item, except as specified in standard spec 109.5.

The approximate quantity shown on the schedule of items for a designated item is for information only and only an estimate. The engineer makes no guarantee that the quantity, which can be determined by computations based on contract information, will equal the approximate quantity shown on the schedule of items. The engineer will not make a quantity adjustment for discrepancies.
SEF Rev. 14_1212

## 55. Force Account.

*Supplement standard spec* 109.4.5.1 (3)1 *with the following:*

Include accumulation of wages to date for each employee performing force account work and identify allowable Federal Unemployment Tax (FUTA) and State Unemployment Tax (SUTA) multipliers.
SEF Rev. 14_1211

## 56. Clearing and Grubbing, Emerald Ash Borer.

This applies to projects in the emerald ash borer (EAB) quarantined zones to include Fond du Lac, Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Washington and Waukesha counties.

*Supplement standard spec 201.3 with the following:*

The emerald ash borer (EAB) has resulted in a quarantine of ash trees (*Fraxinus sp.*) by the Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP) and the Wisconsin Department of Natural Resources (DNR).

Ash trees species attacked by emerald ash borer include the following:

(a) Green ash (F. pennsylvanica) is found throughout the state, but is most common in southern Wisconsin. It may form pure stands or grow in association with black ash, red maple, swamp white oak, and elm. It grows as an associate in upland hardwood stands, but is most common in and around stream banks, floodplains, and swamps.
(b) Black ash (F. nigra) is distributed over the entire state but is most frequently found in northern Wisconsin. It is most common in swamps, but is also found in other wet forest types.
(c) Blue ash (F. quadrangulata) is a threatened species that is currently found only at a few sites in Waukesha County. The species is at the edge of its range in Wisconsin, but is common in states farther south. The species is not of commercial importance. Blue ash twigs are 4-sided.
(d) White ash (F. americana) tends to occur primarily in upland forests, often with Acer saccharum.

The quarantine of ash trees includes all horticultural cultivars of the species listed above.

Note that blue ash twigs are 4-sided. All other Wisconsin ash trees have round stems. Also, Mountain ash (*Sorbus americana and S. decora*) is not a true ash and is not susceptible to EAB infestation.

The contractor shall be responsible for hiring a certified arborist to identify all ash trees that will be cleared and grubbed for the project. In addition, prior to scheduled clearing and grubbing activities, the arborist shall mark all ash trees with florescent lime flagging tied around the trunk perimeter.

Follow and obey the following Wisconsin Department of Agriculture, Trade, and Consumer Protection order:

**ATCP 21.17 Emerald ash borer; import controls and quarantine.**

**Importing or Moving Regulated Items from Infested Areas; Prohibition**.
Except as provided in subparagraph (3), no person may do any of the following:

(a) Import a regulated item under sub. (2) into this state if that item originates from an emerald ash borer regulated area identified in 7CFR 301.53-3.

(b) Move any regulated item under sub. (2) out of an emerald ash borer regulated area that is identified in 7CFR 301.53-3 and located in this state.

Note: the United States Department of Agriculture-Animal and Plant Health Inspection Service (USDA-APHIS) periodically updates the list of regulated areas in 7CFR 301.53-3. Subsection (1) applies to new regulated areas as those areas are identified in the CFR.

**Regulated Items**. The following are regulated items for purposes of subparagraph (1):

The emerald ash borer, Agrilus planipennis Fairmaire in any living stage.

Ash trees.

Ash limbs, branches, and roots.

Ash logs, slabs or untreated lumber with bark attached.

Cut firewood of all non-coniferous species.

Ash chips and ash bark fragments (both composted and uncomposted) larger than one inch in diameter.

Any other item or substance that may be designated as a regulated item if a DATCP pest control official determines that it presents a risk of spreading emerald ash borer and notifies the person in possession of the item or substance that it is subject to the restrictions of the regulations.

**Regulatory Considerations**
The quarantine means that ash wood products may not be transported out of the quarantined area.

Clearing and grubbing includes all ash trees that are to be removed from within the project footprint. If ash trees are identified within clearing and grubbing limits of the project, the following measures are required for the disposal:

**Chipped Ash Trees**
May be left on site if used as landscape mulch within the project limits. If used as mulch on site, chips may not be applied at a depth greater than standard mulch applications as this will impede germination of seeded areas.

May be buried on site within the right-of-way in accordance to standard spec 201.3 (14).

May be buried on adjacent properties to projects within the quarantined zone with prior approval of the engineer in accordance to standard spec 201.3 (15).

May be trucked to a licensed landfill within the quarantined zone with the engineer's approval in accordance to standard spec 201.3 (15).

Burning chips is optional if in compliance with standard spec 201.3.

Chips must be disposed of immediately if not used for project mulching and may not be stockpiled and left on site for potential transport by others. Chips may be stockpiled temporarily if they will be used for project mulching and are not readily accessible to the public.

Chipper equipment must be cleaned following post-chipping activities to ensure no spread of wood chip debris into non-quarantined counties.

**Ash logs, Branches, and Roots**
May be buried without chipping within the existing right-of-way or on adjacent properties in accordance to standard spec 201.3 (14)(15).

May be trucked to a licensed landfill within the quarantined zone with the engineer's approval in accordance to standard spec 201.3 (15).

Burning is optional if in compliance with standard spec 201.3.

Ash logs, branches, and roots must be disposed of immediately and may not be stockpiled.

All additional costs will be incidental to clearing and grubbing items.

Do not bury or use mulch in an area that will be disturbed again during later phases of the project.

Anyone moving firewood or ash products from the state or these counties is subject to state and federal fines up to $1,000.00. All fines are the responsibility of the contractor. Obtain updated quarantine information at the DNR Firewood Information Line at (800) 303-WOOD.

**Furnishing and Planting Plant Materials**
*Supplement standard spec 632.2.2 with the following:*

Ash trees may be obtained from inside or outside the quarantine area and planted within the quarantined area. Ash trees from within the quarantine area may not be transported and planted into the non-quarantined area.

**Updates for Compliance**
Each year, as a service, the Wisconsin department of agriculture, trade and consumer protection distributes an updated federal CFR listing to nursery license holders and other affected persons in this state. More frequent updates, if any, are available on the Department of Agriculture, Trade, and Consumer Protection (DATCP) website at **www.datcp.state.wi.us** . Subsection (1) applies to new regulated areas as those areas are identified in the CFR, regardless of whether affected persons receive update notices from the DATCP. Persons may request update notices by calling (608) 224−4573, by visiting the DATCP website, or by writing to the following address:

Wisconsin Department of Agriculture, Trade and Consumer Protection
Division of Agricultural Resource Management
P.O. Box 8911
Madison WI 53708−8911

**Regulated Items**
More frequent updates, if any, are available on the DATCP website at **www.datcp.state.wi.us** . Subsection (1) applies to new regulated areas as those areas are identified in the CFR, regardless of whether affected persons receive update notices from DATCP. Persons may request update notices by calling (608) 224−4573, by visiting the DATCP website, or by writing to the above address.
201-SER1 (20100401)

## 57. Abatement of Asbestos Containing Material Structure B-40-101, Item 203.0210.S.0001; Structure B-40-0112, Item 203.0210.S.0002; Structure B-40-0126, Item 203.0210.S.0003; Structure B-40-0127, Item 203.0210.S.0004; Structure B-40-0143, Item 203.0210.S.0005; Structure B-40-0144, Item 203.0210.S.0006; Structure B-40-0094, Item 203.0210.S.0007; Structure B-40-0096, Item 203.0210.S.0008; Structure B-40-0097, Item 203.0210.S.0009.

**A Description**
This special provision describes abating asbestos containing material on structures in accordance to the plans, the pertinent provisions of the standard specifications and as hereinafter provided.

**B (Vacant)**

**C Construction**
Timothy G. Petrofske, Lic. Number All-115985 and Thomas McCoy, License Number All-117261, inspected Structure B-40-0101 for asbestos on June 3, 2009. Regulated Asbestos Containing Material (RACM) is assumed to be present on this structure in the following locations and quantities:

**B-40-0101**
Utilities; Electrical Box; Bridge Abutment; 2-(4 feet x 3 feet).

Timothy G. Petrofske, Lic. Number All-115985 and Thomas McCoy, License Number All-117261, inspected Structure B-40-0112 for asbestos on June 23, 2009. Regulated Asbestos Containing Material (RACM) is assumed to be present on this structure in the following locations and quantities:

**B-40-0112**
Utilities; Electrical Box; Bridge Parapet; 2(3 feet x 4 feet),

Utilities; Overhead Light; Bridge Parapet; 1(30 feet x 1 feet).

Timothy G. Petrofske, Lic. Number All-115985 and Thomas McCoy, License Number All-117261, inspected Structures B-40-0126 and B-40-0127 for asbestos on June 2, 2009. Regulated Asbestos Containing Material (RACM) is assumed to be present on this structure in the following locations and quantities:

**B-40-0126**
Utilities; Electrical Box; Bridge Parapet West; 2(3 feet x 3 feet).

Utilities; Light Pole; Bridge Parapet East; 1(30 feet x 6 inches.).

**B-40-0127**
Utilities; Electrical Box; Bridge Abutment East; 2(3 feet x 3 feet).

Timothy G. Petrofske, Lic. Number All-115985 and Thomas McCoy, License Number All-117261, inspected Structures B-40-0143 and B-40-0144 for asbestos on June 11, 2009. Regulated Asbestos Containing Material (RACM) was found on this structure in the following locations and quantities:

**B-40-0143**
Grey Caulk; Bridge Parapet - Southeast; Bridge Parapet - Center; Bridge Parapet – Southwest; 10(8 feet x 3 inches),

**B-40-0144**
Grey Caulk; Bridge Parapet - Northeast; Bridge Parapet – North Center; Bridge Parapet – Northwest; 10(8 feet x 3 inches),

Utilities; Light Pole; Bridge Parapet – South center; 1(30 feet x 1 foot).

Timothy G. Petrofske, Lic. Number All-115985 and Thomas McCoy, License Number All-117261, inspected Structure B-40-0094 for asbestos on June 23, 2009. Regulated Asbestos Containing Material (RACM) is assumed to be present on this structure in the following locations and quantities:

**B-40-0094**
Utilities; Electrical Box; Bridge Parapet; 2(4 feet x 3 feet).

Timothy G. Petrofske, Lic. Number All-115985 and Thomas McCoy, License Number All-117261, inspected Structures B-40-0096 for asbestos on June 9, 2009. Regulated Asbestos Containing Material (RACM) is assumed to be present on this structure in the following locations and quantities:

**B-40-0096**
Utilities; PVC Conduit; Southeast Bridge Abutment 3(2 inches x 29 feet).

Utilities; Electrical Box; Northeast and Southeast Bridge Parapet; 2(4 feet x 3 feet).

Timothy G. Petrofske, Lic. Number All-115985 and Thomas McCoy, License Number All-117261, inspected Structures B-40-0097 for asbestos on June 9, 2009. Regulated Asbestos Containing Material (RACM) is assumed to be present on this structure in the following locations and quantities:

**B-40-0097**
Utilities; PVC Conduit; Electrical Box; South Bridge Abutment 3(2 inches x 151 feet).

Utilities; Steel Conduit; West Bridge Abutment 1(2 inches x 151 feet).

Utilities; Electrical Box; Northwest and Southwest Bridge Parapet; 3(1 foot x 1 foot).

The RACM on these structures must be abated by a licensed abatement contractor. A copy of the inspection report is available from Jeff Bohen at (414) 750-2928. In accordance to NR447 and DHS159, ensure that DNR or DHS receives a completed Notification of Demolition and/or Renovation (DNR Form 4500-113 (R 4/11), or subsequent revision) via U.S. mail, hand-delivery, or using the online notification system at least 10 working days prior to beginning any construction or demolition. Pay all associated fees. Provide a copy of the completed 4500-113 form and the abatement report to Andrew Malsom, WisDOT SE Region Hazmat and Environmental Engineer at (262) 548-6705 and DOT BTS-ESS Mark Klipstein, WisDOT Zoo Interchange Construction Project Manager at (414) 750-1496 attn: Hazardous Materials Specialist PO Box 7965, Madison, WI, 53707-7965. In addition, comply with all local or municipal asbestos requirements.

Use the following information to complete WisDNR form 4500-113 :

**B-40-0101**

- Site Name: Structure B-40-0101, USH 45 northbound over IH 94 westbound E-W Freeway
- Site Address: 0.3M N JCT IH 894 TO W, Milwaukee.
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow Street, P.O. Box 798, Waukesha, WI 53187-0798
- Contact: Mark Klipstein
- Phone: (414) 750-1496
- Age: 52 years old. This structure was constructed in 1963.
- Area: 7620 SF of deck

**B-40-0112**

- Site Name: Structure B-40-0112, IH 94 westbound E-W Freeway over Hank Aaron State Trail
- Site Address: 0.5M W JCT STH 100 (E), Wauwatosa.
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow Street, P.O. Box 798, Waukesha, WI 53187-0798
- Contact: Mark Klipstein
- Phone: (414) 750-1496
- Age: 52 years old. This structure was constructed in 1963.
- Area: 19860 SF of deck

**B-40-0126**

- Site Name: Structure B-40-0126, IH 894 eastbound Freeway over Union Pacific Railroad
- Site Address: 0.6M E JCT STH 59 TO E, West Allis.
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow Street, P.O. Box 798, Waukesha, WI 53187-0798
- Contact: Mark Klipstein
- Phone: (414) 750-1496
- Age: 53 years old. This structure was constructed in 1962.
- Area: 12600 SF of deck

**B-40-0127**

- Site Name: Structure B-40-0127, IH 894 westbound Freeway over Union Pacific Railroad
- Site Address: 0.9M N JCT IH 43 TO N, West Allis.
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow Street, P.O. Box 798, Waukesha, WI 53187-0798
- Contact: Mark Klipstein
- Phone: (414) 750-1496
- Age: 53 years old. This structure was constructed in 1962.
- Area: 12670 SF of deck

**B-40-0143**

- Site Name: Structure B-40-0143, IH 94 eastbound E-W Freeway over Underwood Creek and Underwood Creek Parkway
- Site Address: 1.0M N JCT STH 59, West Allis
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow Street, P.O. Box 798, Waukesha, WI 53187-0798
- Contact: Mark Klipstein
- Phone: (414) 750-1496
- Age: 54 years old. This structure was constructed in 1961.
- Area: 13400 SF of deck

**B-40-0144**

- Site Name: Structure B-40-0144, IH 94 westbound Freeway over Underwood Creek and Underwood Creek Parkway
- Site Address: 1.0M N JCT STH 59, West Allis
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow Street, P.O. Box 798, Waukesha, WI 53187-0798
- Contact: Mark Klipstein
- Phone: (414) 750-1496
- Age: 54 years old. This structure was constructed in 1961.
- Area: 13400 SF of deck

**B-40-0094**

- Site Name: Structure B-40-0094, IH 894 westbound – USH 894 eastbound Freeway over Slinger Avenue
- Site Address: 0.2M E JCT IH 94 FROM W, West Allis
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow Street, P.O. Box 798, Waukesha, WI 53187-0798
- Contact: Mark Klipstein
- Phone: (414) 750-1496
- Age: 55 years old. This structure was originally constructed in 1960.
- Area: 8860 SF of deck

**B-40-0096**

- Site Name: Structure B-40-0096, IH 894 eastbound Zoo Interchange over Hank Aaron State Trail (formerly CMSTPP Railroad and CP Railroad)
- Site Address: 0.1M E JCT IH 94 FROM W, Milwaukee
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow Street, P.O. Box 798, Waukesha, WI 53187-0798
- Contact: Mark Klipstein
- Phone: (414) 750-1496
- Age: 55 years old. This structure was originally constructed in 1960.
- Area: 4340 SF of deck

**B-40-0097**

- Site Name: Structure B-40-0097, USH 45 southbound Zoo Interchange over Hank Aaron State Trail (formerly CMSTPP Railroad and CP Railroad)
- Site Address: 1.1M S JCT USH 18 TO E, Milwaukee
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow Street, P.O. Box 798, Waukesha, WI 53187-0798
- Contact: Mark Klipstein
- Phone: (414) 750-1496
- Age: 55 years old. This structure was originally constructed in 1960.
- Area: 7570 SF of deck

Insert the following paragraph in Section 6.g.:

- If asbestos not previously identified is found or previously non-friable asbestos becomes crumbled, pulverized, or reduced to a powder, stop work immediately, notify the engineer, and the engineer will notify the department's Bureau of Technical Services at (608) 266-1476 for an emergency response in accordance to standard spec 107.24. Keep material wet until it is abated or until it is determined to be non-asbestos containing material.

**D Measurement**

The department will measure Abatement of Asbestos Containing Material (Structure), completed in accordance to the contract and accepted, as a single complete unit of work.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 203.0210.S.0001 | Abatement of Asbestos Containing Material Structure B-40-101 | LS |
| 203.0210.S.0002 | Abatement of Asbestos Containing Material Structure B-40-0112 | LS |
| 203.0210.S.0003 | Abatement of Asbestos Containing Material Structure B-40-0126 | LS |
| 203.0210.S.0004 | Abatement of Asbestos Containing Material Structure B-40-0127 | LS |
| 203.0210.S.0005 | Abatement of Asbestos Containing Material Structure B-40-0143 | LS |
| 203.0210.S.0006 | Abatement of Asbestos Containing Material Structure B-40-0144 | LS |
| 203.0210.S.0007 | Abatement of Asbestos Containing Material Structure B-40-0094 | LS |
| 203.0210.S.0008 | Abatement of Asbestos Containing Material Structure B-40-0096 | LS |
| 203.0210.S.0009 | Abatement of Asbestos Containing Material Structure B-40-0097 | LS |

Payment is full compensation for submitting necessary forms; removing all asbestos; properly disposing of all waste materials; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the contract work.

203-005 (20120615)

## 58. Debris Containment B-40-0126, Item 203.0225.S.0001; B-40-0127, Item 203.0225.S.0002.

**A Description**

This special provision describes providing a containment system to prevent debris from structure removal, reconstruction, or other construction operations from falling onto

facilities located under the structure. Using this containment system does not relieve the contractor of requirements under standard spec 107.17 and standard spec 107.19 or requirements under a US Army Corps of Engineers Section 404 Permit.

**B (Vacant)**

**C Construction**

Prior to starting work, submit a debris containment plan to the engineer for review. Incorporate engineer-requested modifications. Do not start work over the Union Pacific Railroad until the engineer approves the debris containment plan.

Maintain adequate protection throughout construction for people and property within the potential fall zone. Ensure that a containment system capable of protecting underlying facilities from falling construction debris is in place before beginning deck repair, parapet removal, or other operations that may generate debris.

At least 15 working days before conducting potential debris generating operations, contact the following owners or lessees:

- John Venice, Manager of Special Projects – Industry and Public Projects
- Engineering Department
- Union Pacific Railroad Company
- 101 North Wacker Drive, Suite 1920
- Chicago, Il 60606
- Telephone: (312) 777-2043
- Fax: (402) 233-2769
- Email:jnvenice@up.com

**D Measurement**

The department will measure Debris Containment B-40-126 and Debris Containment B-40-127 as a single lump sum unit of work for each structure, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 203.0225.S.0001 | Debris Containment B-40-0126 | LS |
| 203.0225.S.0002 | Debris Containment B-40-0127 | LS |

Payment is full compensation for furnishing, installing, maintaining, and removing a debris containment system.

203-010 (20080902)

## 59. Removing Old Structure Over Waterway With Minimal Debris Station 100EW+77, Item 203.0600.S.0001; Station 100EW+80, Item 203.0600.S.0002.

Conform to standard spec 203 as modified in this special provision.

*Add the following to standard spec 203:*

**203.3.6 Removals Over Waterways and Wetlands**

**203.3.6.2 Removing Old Structure Over Waterway with Minimal Debris**

(1) Remove the existing Structures B-40-143 and B-40-144 over the South Branch of Underwood Creek in large sections and conforming to the contractor's approved structure removal and clean-up plan. During superstructure removal, prevent all large pieces and minimize the number of small pieces from entering the waterway or wetland. Remove all reinforcing steel, all concrete, and all other debris that falls into the waterway or wetland. The contractor may leave limited amounts of small concrete pieces scattered over the waterway floor or wetland only if the engineer allows.

(2) Submit a structure removal and clean-up plan as part of the erosion control implementation plan required under standard spec 107.20. Do not start work under the structure removal and clean-up plan without the department's written approval of the plan. Include the following information in the structure removal and clean-up plan:

- Methods and schedule to remove the structure.
- Methods to control potentially harmful environmental impacts.
- Methods for superstructure removal that prevent all large pieces and minimize the number of small pieces from entering the waterway or wetlands.
- Methods to control dust and contain slurry.
- Methods for removing piers and abutments. If blasting in water, include restrictions that regulatory agencies and the contract require.
- Methods for cleaning the waterway or wetlands.

(3) If stockpiling spoil material, place it on an upland site an adequate distance from the waterway, wetland, or any open water created by excavation. Install silt fence between the spoil pile and the waterway, wetland, or excavation site.

*Add the following Removing Old Structure bid item to standard spec 203.5.1:*

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 203.0600.S.0001 | Removing Old Structure Over Waterway With Minimal Debris Station 100EW+77 | LS |
| 203.0600.S.0002 | Removing Old Structure Over Waterway With Minimal Debris Station 100EW+80 | LS |

203-020 (20080902)

## 60. Removing Old Culverts and Bridges.

*Modify the standard specs as follows:*

*Supplement standard spec 203.3.1 with the following:*

**Structure Removal Site Safety Plan**
Prepare a Structure Removal Site Safety Plan covering all structure removal work included in the contract. Maintain posted copies of the Structure Removal Site Safety Plan at the site in the project field office. Provide two copies of the Structure Removal Site Safety Plan to the engineer at least four weeks prior to beginning removal work.

**Structure Removal Plans**
Prepare a structure specific removal plan for all structure removal work included in the contract, indicating the methods and sequence of demolition.

Examine the existing structure plans and visit the site prior to preparing and submitting the structure removal plan(s). The contractor is responsible for the methods and sequence of demolition, including effects on the overall stability of each structure being removed. At a minimum, each removal plan shall include:

1. The name of the professional engineer, registered in the state of Wisconsin who will be on site and monitoring the removal of existing structures as required in this specification.

2. The name of the contractor's on-site-employee designated in responsible charge of all removal operations.

3. The removal method and sequence of removal for each individual structure, including the staging of bridge removals.

4. Analysis of the stability of the structure based on the methods and sequence of demolition proposed, to ensure that the structure is demolished in a safe and controlled manner. The analysis computations shall be prepared, signed and sealed by a professional engineer registered in the State of Wisconsin.

5. Design and details of temporary supports, shoring or temporary bracing, if required to stabilize portions of partially remaining structures during the removal sequence or support partially remaining structures after staged removals. Include design computations and detail drawings for all temporary supports, shoring and bracing that indicate the exact placement of the temporary supports, shoring or bracing; verification of design loads; attachment details; and methods for the safe transfer of loads from existing structural elements to be removed to the temporary supports, shoring, or bracing. Temporary support, shoring, or bracing design computations and drawings details are to be prepared, signed and sealed by a professional engineer registered in the State of Wisconsin.

6. Design and details of temporary support foundations. Include in the foundation design the evaluation of expected foundation settlement and the effect that this will have on the structure being supported. Temporary support foundation design computations and drawing details are to be prepared, signed and sealed by a professional engineer registered in the State of Wisconsin.

7. Equipment type and locations of equipment on the structure(s) or adjacent roadways during the removal operations

8. Locations and type of work to be performed directly adjacent to traffic.

9. Details and locations of protective covers and other measures to ensure that people, property and improvements will not be endangered or damaged as a result of the removal operations. Include methods for protecting any pavement surfaces including shoulders, concrete barriers, and other highway features.

10. Methods of removal, hauling and disposal, including haul routes and disposal destination.

11. A schedule of anticipated roadway and lane closures to accommodate removal operations. Include the timing of individual lane or temporary roadway closures and the nature of removal operations that will be performed during the lane or roadway closures.

12. Acknowledgement that the contractor and removal design engineer responsible for preparing the removal plan have visited the site and reviewed the existing structure plans in preparing the removal plan.

**Structure Pre-Removal Meetings**

After submission of the Structure Removal Site Safety Plan and required Structure Removal Plan(s), schedule and conduct structure pre-removal meetings at a time agreed to by the engineer. Hold structure pre-removal meetings at least three working days prior to beginning structure removal activities. If the engineer agrees in advance, multiple structure removals can be combined and discussed at one structure pre-removal meeting. Otherwise, schedule and conduct a separate structure pre-removal meeting for each structure to be removed.

*Supplement standard spec 203.3.2.1 with the following:*

Perform structure removals in accordance to the submitted Structure Removal Site Safety Plan and applicable Structure Removal Plan(s).

*Replace standard spec 203.3.2.2 (1) with the following:*

Except as specified below for closing culverts, completely remove all structures, culverts and substructures.

*Supplement standard spec 203.5.1(2) with the following:*

Payment includes preparation and submittal of a Structure Removal Site Safety Plan; preparation and submittal of Structure Removal Plan(s) and performing all structure removal work in accordance to the submitted plans.
SEF Rev. 14_1215_revised

## 61. Pavement Breaking Equipment.

Use only hydraulic pavement breaking equipment for breaking pavement within 300 feet of any structure. Do not use guillotine, drop hammer, falling weight, gravity impact breakers or equivalent equipment. A multi-head hydraulic drop hammer is allowed unless a structure is within 50 feet of the roadway.
SEF Rev. 14_0415

## 62. Removing Concrete Barrier.

*Modify the standard specs as follows:*

*Supplement standard spec 204.3.2.2 with the following:*

Under the Removing Concrete Barrier bid item, remove barrier and footing, unless specified in the plans, at the locations the plans show. Removal includes all required sawing in accordance to standard spec 690.

*Supplement standard spec 204.5.1(2) with the following:*

Payment for Removing Concrete Barrier is full compensation for furnishing all required sawing and removal of existing barrier and footing, and sludge removal.
SEF Rev 14_1212

## 63. Removing or Abandoning Miscellaneous Structures.

*Replace standard spec 204.5.1(3) with the following:*

When backfilling with Backfill Granular as specified in this special provision article or as directed by the engineer, the item Backfill Granular is considered incidental to the appropriate bid item.

At locations where Backfill Granular is not specified, contractor may choose to use either Backfill or Backfill Granular, and no separate payments will be made for using Backfill Granular.

*Supplement standard spec 204.3.2.2 with the following:*

Backfill existing storm sewer or existing storm sewer structure locations shown for removal or abandonment outside the new traveled way with native backfill immediately after completing the sewer work. Backfill according to standard spec 209 within the traveled way.

All backfill, including native material, provided for removal or abandonment of existing storm sewer structures and pipes is considered incidental to the appropriate bid item.
SEF Rev. 14_1215

## 64. Removing Concrete Surface Partial Depth, Item 204.0109.S.

**A Description**
This special provision describes removing a portion of the concrete surfaces as shown on the plans according to standard spec 204, and as hereinafter provided.

**B (Vacant)**

**C Construction**
**C.1 Equipment**
Use a machine that provides a surface finish acceptable to the engineer. Shroud the machine to prevent discharge of any loosened material into adjacent work areas or live traffic lanes.

Use a machine that is equipped with electronic devices that provide accurate depth, grade and slope control, and acceptable dust control system.

**C.2 Methods**
Remove existing concrete to the depths as shown on the plan by grinding, planing, chipping, sawing, milling, or by using other methods approved by the engineer.

Perform the removal operation in such a manner as to preclude damage to the remaining pavement and results in a reasonable uniform plane surface free of excessive large scarification marks and having a uniform transverse slope.

The sequence of removal operations shall be such that no exposed longitudinal joints 2 inches or more in depth remain during non-working hours. Windrowing or storing of the removed material on the roadway will only be permitted in conjunction with a continuous removal and pick-up operation. During non-working hours, clear the roadway of all materials and equipment.

The removed pavement shall become the property of the contractor. Properly dispose of it according to standard spec 204.3.1.3.

**D Measurement**
The department will not measure Removing Concrete Surface Partial Depth. The department will use pay plan quantity according to the Pay Plan Quantity article.

**E Payment**
The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 204.0109.S | Removing Concrete Surface Partial Depth | SF |

Payment is in full compensation for removing the concrete; and for disposing of materials.

## 65. Abandoning Sewer, Item 204.0291.S.

**A Description**
This special provision describes abandoning existing sewer by filling it with cellular concrete according to the pertinent requirements of standard spec 204 and standard spec 501, as shown in the plans, and as hereinafter provided.

**B Materials**
Provide cellular concrete meeting the following specifications: 1 part cement, 1 part fly ash, 8 parts sand, or an approved equal, and water. Provide cement meeting the requirements of standard spec 501.2.1 for Type 1 Portland Cement. Provide sand meeting the requirements of standard spec 501.2.5.3 Provide water meeting the requirements of standard spec 501.2.4.

**C Construction**
Fill the abandoned sewer pipe with cellular concrete as directed by the engineer. In the event that the sewer cannot be completely filled from existing manholes, tap the sewer where necessary and fill from these locations.

**D Measurement**
The department will measure Abandoning Sewer in volume by the cubic yard according to standard spec 109.1.3.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 204.0291.S | Abandoning Sewer | CY |

Payment is full compensation for furnishing all materials and excavating and backfilling where necessary.
204-050 (20080902)

## 66. Removing Apron Endwall, Item 204.9060.S.0002.

**A Description**
This special provision describes removing Apron Endwall in accordance to the pertinent provisions of standard spec 204 and as hereinafter provided.

**B (Vacant)**

**C (Vacant)**

**D Measurement**
The department will measure Removing Apron Endwall as each individual apron endwall, acceptably completed.

**E Payment**
*Supplement standard spec 204.5 to include the following:*

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 204.9060.S.0002 | Removing Apron Endwall | Each |
| 204-025 (20041005) | | |

## 67. Removing Noise Barrier, Item 204.9090.S.0001.

**A Description**
This special provision describes removing noise barrier in accordance to the pertinent provisions of standard spec 204 and as hereinafter provided.

**B (Vacant)**

**C (Vacant)**

**D Measurement**
The department will measure Removing Noise Barrier by the linear foot acceptably completed.

**E Payment**
*Supplement standard spec 204.5 to include the following:*

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 204.9090.S.0001 | Removing Noise Barrier | LF |
| 204-025 (20041005) | | |

## 68. Removing Drain Slotted Vane, Item 204.9090.S.0005.

**A Description**
This special provision describes Removing Drain Slotted Vane in accordance to the pertinent provisions of standard spec 204 and as hereinafter provided.

**B (Vacant)**

**C (Vacant)**

**D Measurement**
The department will measure Removing Drain Slotted Vane in linear feet, acceptably completed.

**E Payment**
*Supplement standard spec 204.5 to include the following:*

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 204.9090.S.0005 | Removing Drain Slotted Vane | LF |

No additional payments will be made for removing vane grates and pipes and is considered incidental to this bid item.
204-025 (20041005)

## 69. Roadway Excavation.

Earthwork divisions that do not have sufficient available material to complete the expanded fills will require the use of storm sewer excavation or structure excavation to fill the remaining embankment. Borrow will not be paid for on this project.

*Add the following to standard spec 205.5.2(1):*

Provide the department with an earth flow diagram within 30 calendar days of receiving the contract Notice to Proceed.

Identify all excavation required for the project, all sources of embankment fill, shrinkage and swell factors, proposed stockpile material, structure excavation (if used in embankments), waste, and fills anticipated to be treated with a soil drying agent. Provide start and finish dates for each grading area within the division. These dates should correspond to the dates shown on the project schedule.

The earth flow diagram will show placement of roadway embankment utilizing excavated material under the Excavation, Hauling, and Reuse of Solid Waste Soil item.

Any deviation from the sequencing shown in the earth flow diagram will require approval from the engineer, and will require an update to the earth flow diagram.

*Add the following to standard spec 205.5.2(2):*

The department will not pay EBS to remove frost from embankments or cut sections, unless directed by the engineer. It is the contractor's responsibility to stage construction so that exposed subgrades do not freeze or to provide adequate frost protection. Any work necessary to remove and replace frozen materials from newly constructed embankments or exposed cut sections is considered incidental to the excavation bid items.

## 70. QMP Subgrade.

**A Description**

This special provision describes requirements for subgrade materials within the roadway foundation as defined in standard spec 101.3. Conform to standard spec 207 as modified in this special provision for all work within the roadway foundation at the following locations:

USH 45, IH 94, IH 894 Mainline, all Temporary and Permanent Freeway Ramps, Temporary Widening, Crossroad Mainline, Local roads, and Temporary roads

Provide and maintain a quality control program. A quality control program is defined as all activities, including process control inspection, sampling and testing, documentation, and necessary adjustments in the process that are related to the construction of subgrade which meets all the requirements of this provision.

Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes sampling and testing procedures. The contractor may obtain the CMM from the department's web site at:

http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/rdwy/cmm.aspx

**B Materials**

**B.1 Quality Control Plan**

Submit a comprehensive written quality control plan to the engineer at or before the pre-construction meeting. Do not perform grading work before the engineer reviews and accepts the plan. Construct the project as the plan provides.

Do not change the quality control plan without the engineer's review. Update the plan with changes as they become effective. Provide a current copy of the plan to the engineer and post in the contractor's laboratory as changes are adopted. Ensure that the plan provides the following elements:

1. An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of QC personnel.
2. The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication process that will be used, and action time frames.
3. An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.
4. Location of the QC laboratory, retained sample storage, and control charts and other documentation.
5. A summary of the locations and calculated quantities to be tested under this provision.
6. An explanation regarding the basis of acceptance for material that cannot be tested by nuclear methods due to a high percentage of oversized particles.

**B.2 Personnel**

Perform the quality control sampling, testing, and documentation required under this provision using HTCP certified technicians. Have a grading technician certified under HTCP at level I (or ACT Grading Technician under the direction of a certified technician) present at the site during all subgrade preparation, fill placement, compaction, and nuclear testing activities. Have a nuclear density technician certified under HTCP at level I perform field density and field moisture content testing.

**B.3 Laboratory**

Perform quality control testing in a department-qualified laboratory. Obtain information on the Wisconsin laboratory qualification program from:

Materials Laboratory
3502 Kinsman Boulevard
Madison, Wisconsin 53704-2583
Telephone: (608) 246-7938
http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/qual-lab-req.aspx

**B.4 Equipment**

Furnish the necessary equipment and supplies for performing quality control testing. Ensure that all testing equipment conforms to the equipment specifications applicable to the required testing methods. The engineer may inspect the measuring and testing devices to confirm both calibration and condition. Calibrate all testing equipment according to the CMM and maintain a calibration record at the laboratory.

Furnish nuclear gauges from the department's approved product list at http://www.atwoodsystems.com/materials. Ensure that the gauge manufacturer or an approved calibration service calibrates the gauge within 12 months before using it on the project. Retain a copy of the calibration certificate with the gauge. Nuclear density gauge calibration verification is required daily when earthwork construction operations require testing under this special provision article. This calibration verification shall be performed using the departments "Validator" apparatus which is located at the Zoo Interchange

Construction Field Office: 2424 S. 102nd St., West Allis, Wisconsin 53227. Establish a standard gauge reading for the "Validator" using the ten test average method. The source emitter depth for calibration verification, in the direct transmission mode, will be determined by the engineer. This procedure will establish the "Validator" apparatus, as the contractor's project reference site.

Conform to ASTM D 2950 and CMM 8.15 for density testing and gauge monitoring methods. Perform nuclear gauge measurements using gamma radiation in the backscatter or direct transmission position. Perform each test for 4 minutes of nuclear gauge count time.

**B.5 Soil Source Study**

Conduct and submit a soil source study before beginning of grading operations. Ensure that this study identifies each distinct soil type on the project within the top 15 feet of cut areas and all borrow material. Provide the in-bank natural moisture content for each soil. Develop moisture-density curves for each identified soil type by utilizing AASHTO T 99, with a minimum of 5 individual points, and a zero air voids curve at a specific gravity of 2.65. If a different specific gravity is used perform a specific gravity test. Determine the maximum density and corresponding optimum moisture level for each soil type. Develop a site-specific family of Proctor curves for this contract from the completed soil source study and submit to the engineer for review and acceptance.

Perform characterization tests on each of the soil types selected for the soil source study. The tests for roadway include AASHTO T 89, AASHTO T 90, AASHTO T 27, and AASHTO T 11. Classify each soil type selected according to the AASHTO soil classification system based on the characterization tests. Do not begin grading operations until the engineer accepts the soil source study.

Use the soil types identified in the soil source study with corresponding maximum densities and optimum moisture values to determine the compaction compliance on the project. Continue the soil source study in those areas of cuts greater than 15 feet that were not accessible during the initial study. Include data on additional soil types if project conditions change. Ensure that tests of additional soil types are complete and the engineer accepts the results before incorporating the material into the roadway foundation.

Split each Proctor sample and identify so as to provide comparison with the department's test results. Unless the engineer directs otherwise, retain the QC split samples for 14 calendar days and promptly deliver the department's split samples to the department at:

Regional Materials Laboratory
Attn: Paul Emmons
935 S. 60th Street
West Allis, Wisconsin 53214
Telephone: (414) 266-1158

Retain and identify two representative samples of each Proctor. Submit one sample to the engineer. Retain one sample on site for use when performing textural identification.

## B.6 Quality Control Documentation

### B.6.1 Control Charts

Maintain separate control charts for the field density and field moisture content of each grading area. Designate grading areas within the project as follows:

1. Embankment portions of the project, except within 200 feet of bridge abutments.
2. Embankment within 200 feet of bridge abutments.
3. Subgrade cut portions of the project.
4. Embankment in pipe removal, pipe culvert, sewer and waterline trenches.
5. Structure and granular backfill placed at bridge abutments.
6. Embankments of the project where embankments are 20 feet or higher regardless of location to be known as special compaction area.

Ensure that all tests are recorded and become part of the project records. Plot required test results on the control charts. Include random and engineer-requested testing but only include the contractor's randomly selected QC test results in the 4-point running average. The contractor may plot other contractor-performed process control or informational tests on the control charts, but do not include them in 4-point running averages.

Post control charts in an engineer-approved location and update daily. Ensure that the control charts include the project number, the test number, each test element, the applicable control limits, the contractor's individual test results, the running average of the last 4 data points, and the engineer's quality verification test data points. Use the control charts as part of a process control system for identifying potential problems and assignable causes. Format control charts according to the CMM.

Submit control charts to the engineer in a neat and orderly manner within 10 business days after completing subgrade construction.

### B.6.2 Records

Document all observations, inspection records, adjustments to fill placement procedures, soil changes, and test results daily. Note the results of the observations and inspection records as they occur in a permanent field record. Density test locations shall be identified by a specific test number and include horizontal and vertical control for reference as noted in Section B.7.1.

Provide copies of the field density and field moisture running average calculation sheets, the one-point Proctor tests, records of procedure adjustments, and soil changes to the engineer daily.

Submit original testing records to the engineer in a neat and orderly manner within 10 business days after completing subgrade construction.

## B.7 Contractor Testing

### B.7.1 General

Have a grading technician certified under HTCP at level I (or ACT Grading Technician under the direction of a certified technician) present during all subgrade preparation, fill placement, compaction, and testing. Have a nuclear density technician certified under HTCP at level I perform the testing for field density and field moisture content. During subgrade construction, use sampling and testing methods identified in the CMM to perform the required tests at randomly selected locations at the indicated minimum frequency for each grading area.

Determine the cubic yards for testing based on a total load count system the engineer and contractor agree to.

For each test, provide the cubic yards represented and the test location to within 2 feet horizontally and 0.5 feet vertically. Use project stationing to determine horizontal location and grade stakes to determine vertical location. Elevations must be referenced to NAV88 datum.

Test areas of suspect compaction or areas which appear to be nonconforming as determined by the engineer.

### B.7.2 Field Density and Field Moisture

Perform the field density and field moisture tests using the nuclear density meter method according to AASHTO T 310. Ensure that each field density test material is related to one of the specific soil types identified in the soil source study in determining the percent compaction. Use textural identification as the primary method of establishing this relationship. Utilize the representative samples retained from the soil source study when performing the textural identification. Use a coarse particle correction according to AASHTO T 224.

If field density and field moisture tests cannot be performed by the nuclear density method due to a high percentage of oversized particles as determined according to AASHTO T 99 for highway embankments, observe the placement of the embankment and document the basis of acceptance. Document daily quantities of untested embankment and locations where untested embankment is placed, and keep a cumulative quantity of untested embankment material for the duration of the project. Include the daily documentation and a summary of the cumulative quantity of untested embankment material with the project records.

### B.7.3 One-Point Proctor

Obtain a representative sample of the fill material and test according to AASHTO T 272. Compare the sample to the curves developed in the soils source study to determine the maximum dry density and optimum moisture. Use the appendix for AASHTO T 272 as a guide in this determination.

### B.7.4 Testing Frequency

#### B.7.4.1 Subgrade Embankment portions of the project, except within 200 Feet of bridge abutments

Perform the required tests at the following frequencies:

| Test | Minimum Frequency |
|---|---|
| Field Density and Moisture (AASHTO T 310) | One per 2,000 cubic yards of fill per lift or one test per grading area per day whichever yields the most tests. |
| One-Point Proctor (AASHTO T 272) | One per 9,000 cubic yards or when a change in fill material occurs. |

#### B.7.4.2 Subgrade Embankment Within 200 Feet of Bridge Abutments

Perform the required tests at the following frequencies:

| Test | Minimum Frequency |
|---|---|
| Field Density and Moisture (AASHTO T 310) | One per 1,000 cubic yards of fill per lift or one test per grading area per day whichever yields the most tests. |
| One-Point Proctor (AASHTO T 272) | One per 9,000 cubic yards or when a change in fill material occurs. |

#### B.7.4.3 Subgrade Cut

Perform the required tests at the following frequencies:

| Test | Minimum Frequency |
|---|---|
| Field Density and Moisture (AASHTO T 310) | One test per 1,000 linear feet of cut or one test per cut area whichever yields the most tests. The testing will be completed at the finished subgrade elevation. |

#### B.7.4.4 Subgrade Embankment in Pipe Removals, Pipe Culvert, Sewer and Waterline Trenches

Perform the required tests at the following minimum frequencies per trench run between structures. Test trenches individually at the frequency listed below. For example, lateral lines and trunk lines are to be considered individual trenches:

| Test | Minimum Frequency |
|---|---|
| Field Density and Moisture (AASHTO T 310) | One test per 100 CY of backfill placed per lift or one test per day whichever yields the most tests. |
| One-Point Proctor (AASHTO T 272) | One per 3,000 cubic yards or when a change in fill material occurs. |

### B.7.4.5 Structure and Granular Backfill at Bridge Abutments

Perform the required tests at the following minimum frequencies:

| Test | Minimum Frequency |
|---|---|
| Field Density and Moisture (AASHTO T 310) | One test per 2 feet of vertical backfill height per abutment. |
| One-Point Proctor (AASHTO T 272) | One per 3,000 cubic yards or when a change in fill material occurs. |

### B.7.4.6 Embankments of the project 20 feet or higher regardless of location to be known as special compaction area

Perform the required tests at the following minimum frequencies but exclude MSE wall backfill:

| Test | Minimum Frequency |
|---|---|
| Field Density and Moisture (AASHTO T 310) | One per 2,000 cubic yards of fill per lift or one test per grading area per day whichever yields the most tests. |
| One-Point Proctor (AASHTO T 272) | One per 6,000 cubic yards or when a change in fill material occurs. |

## B.7.5 Compaction Zones

### B.7.5.1 Subgrade Embankment portions of the project, except within 200 Feet of Bridge Abutments

Embankment material placed within 6 feet of the finished subgrade elevation is classified as upper zone material. Material placed more than 6 feet below the finished subgrade elevation is classified as lower zone material.

### B.7.5.2 Subgrade Embankment Within 200 Feet of Bridge Abutments

All embankment material placed within 200 feet of bridge abutments is subject to the quality controls for upper zone material.

### B.7.5.3 Subgrade Cut

Subgrade material in cut areas is subject to the quality controls for upper zone material.

### B.7.5.4 Subgrade Embankment in Pipe Removal and Culvert Pipe Trenches

Material placed within pipe removal and culvert pipe trenches are subject to the quality controls for the zone that the material is located in.

### B.7.5.5 Structure and Granular Backfill at Bridge Abutments

All backfill material placed adjacent to bridge abutments is subject to the quality controls for upper zone material.

**B.7.5.6 Embankments of the project 20 feet or higher regardless of zone to be known as special compaction area**

All embankment material placed where embankments are 20 feet or higher regardless of zone is subject to the quality controls for upper zone material. Exclude MSE wall backfill.

For this contract, the station ranges where embankments are 20 feet or higher and require higher levels of compaction (special compaction) are as follows:

- Station 289NS+75 to Station 290NS+75 (NB)
- Station 289NS+25 to Station 290NS+25 (SB)
- Station 118EW+50 to Station 126EW+86 (EB)
- Station 132EW+30 to Station 135EW+00 (EB)
- Station 117EW+00 to Station 120EW+00 (WB)
- Station 565WS+50 to Station 566WS+98
- Station 523EN+25 to Station 526EN+50
- Station 528EN+25 to Station 531EN+00
- Station 587SE+07 to Station 594SE+05
- Station 604ES+12 to Station 606ES+00
- Station 780GD+50 to Station 781GD+00
- Station 533SC+84 to Station 535SC+00
- Station 29WX+77 to Station 30WX+50
- Station 11BPB+25 to Station 12BPB+50

Also see plan notes identifying special compaction.

**B.7.6 Control Limits**

**B.7.6.1 Field Density**

**B.7.6.1.1 General Conditions**

The lower control limit for field density measurements in the upper zone is a minimum of 95.0% of the maximum dry density as determined by AASHTO T 99 or T 272 for the 4-point running average and a minimum of 92.0% of the maximum dry density for any individual test.

The lower control limit for field density measurements in the lower zone is a minimum of 93.0% of the maximum dry density as determined by AASHTO T 99 or T 272 for the 4-point running average and a minimum of 90.0% of the maximum dry density for any individual test.

**B.7.6.1.2 Embankments of the project 20 feet or higher regardless of zone to be known as special compaction area excluding MSE wall backfill**

The lower control limit for field density measurements in the special compaction area is a minimum of 98.0% of the maximum dry density as determined by AASHTO T 99 or T 272 for the 4-point running average and a minimum of 95.0% of the maximum dry density for any individual test.

**B.7.6.2 Field Moisture Content**

**B.7.6.2.1 General Conditions**

The upper control limit for the field moisture content in the upper and lower zones is 105.0% of the optimum moisture as determined by AASHTO T 99 or T 272 for the 4-point running average.

The lower control limit for the field moisture content in the upper and lower zones is 65.0% of the determined optimum moisture for the 4-point running average. There is no lower control limit for the field moisture of material having less than 5% passing the No. 200 sieve.

**B.7.6.2.2 Embankments of the project 20 feet or higher regardless of zone to be known as special compaction area excluding MSE wall backfill**

The upper control limit for the field moisture content in the special compaction area is 105.0% of the optimum moisture as determined by AASHTO T 99 or T 272 for the 4-point running average. The lower control limit for the field moisture content in the special compaction area is 90% of the determined optimum moisture for the 4-point running average.

**B.7.6.2.3 Winter Conditions**

If the critical path of the project schedule requires grading activities between November 15 and May 1, the upper control limit for soil moisture content may be raised to 110 percent of the optimum moisture content. This specification change may be applied to lower zone material and upper zone material greater than 5 feet below finished subgrade if weather conditions do not allow for standard drying procedures (discing, aerating, etc.) and if approved by the engineer. The upper soil moisture control limit for embankments supporting MSE walls may not be raised. The engineer may allow the higher moisture content specification outside of the aforementioned dates if dictated by schedule and soil and weather conditions.

A written request must be submitted to the department for approval of the higher specification limit for soil moisture content. The request must include the affected grading areas, start and finish dates of grading activities, and total float provided for the activities. Once approved, this change may be applied to the quality control program and should be reflected in the control charts and testing records."

**B.7.7 Corrective Action**

Notify the engineer if an individual field density test falls below the individual test control limit. The subgrade in this area is unacceptable. Perform corrective actions, acceptable to the engineer to improve the density of the subgrade material. After corrective action, perform a randomly located retest within the represented quantity to ensure that the material is acceptable. The field density tests, soil moisture content tests and soil stability must meet the requirements of this special provision for the fill to be considered acceptable.

Notify the engineer if the field density or field moisture running average point falls below the running average control limit for field density or outside the control limits for field moisture. The subgrade in this area is unacceptable. Perform corrective actions, acceptable to the engineer to improve the quality of the material represented by the running average point. Retest each corrected area at a new random location within its represented quantity and determine a new 4-point running average. If the new running average is not acceptable, perform further corrective actions and retest at new random locations.

If the contractor's control data is proven incorrect resulting in a field density or field moisture point falling below the control limit for field density or outside the control limits for field moisture, the subgrade is unacceptable. Employ the methods described above for unacceptable material.

### B.8 Department Testing

#### B.8.1 General

The department will conduct verification testing to validate the quality of the product and independent assurance testing to evaluate the sampling and testing. The department will provide the contractor with a listing of names and telephone numbers of all verification and independent assurance personnel for the project.

The department will provide field density and field moisture test results to the contractor on the day of testing. Test results from Proctor split samples will be provided to the contractor within 7 business days after the sample has been received by the department.

#### B.8.2 Verification Testing

The department will have an HTCP technician, or ACT under the direction of a certified technician, perform QV sampling and testing. Department verification testing personnel must meet the same certification level requirements specified for contractor testing personnel for each test being verified. The department will notify the contractor before testing so the contractor can observe QV testing.

The department will test field density and field moisture randomly at locations independent of the contractor’s QC work. The department will use split samples for verification of Proctor testing. In all cases, the department will conduct the verification tests in a separate laboratory and with separate equipment from the contractor's QC tests.

The department will perform verification testing as follows:

1. The department will conduct verification tests on Proctor split samples taken by the contractor. These samples may be from the Soil Source Study or the one-point Proctor or sample locations chosen by the engineer from anywhere in the process. The minimum verification testing frequency is one per 90,000 cubic yards, with at least one for each soil type identified in the Soil Source Study.

2. The department will test the first split sample obtained by the contractor for the one-point Proctor. The engineer may select any contractor-retained sample for verification testing.
3. The department will conduct at least one verification test for field density and field moisture per 20,000 cubic yards.

Plot verification tests on the contractor's quality control charts as specified in B.6.1. Do not include verification tests in the 4-point running average.

If verification tests are within specified control limits, no further action is required. If verification tests are not within specified control limits, the engineer and contractor will jointly investigate any testing discrepancies. The investigation may include additional testing as well as review and observation of both the department's and contractor's sampling and testing procedures and equipment. Both parties will document all investigative work.

Correct all deficiencies. If the contractor does not respond to an engineer request to correct a deficiency or resolve a testing discrepancy, the engineer may suspend grading work until action is taken. Resolve disputes as specified in B.9.

**B.8.3 Independent Assurance Testing**

Independent assurance is unbiased testing the department performs to evaluate the department's verification and the contractor's QC sampling and testing including personnel qualifications, procedures, and equipment. The department will perform the independent assurance review according to the department's independent assurance program, which may include one or more of the following:

1. Split sample testing.
2. Proficiency sample testing.
3. Witnessing sampling and testing.
4. Test equipment calibration checks.
5. Reviewing required worksheets and control charts.
6. Requesting that testing personnel perform additional sampling and testing.

Plot the independent assurance tests on the contractor's quality control charts as specified in B.6.1. Do not include independent assurance tests in the 4-point running average.

If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend grading work until action is taken. Resolve disputes as specified in B.9.

**B.9 Dispute Resolution**

The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate sampling and

testing procedures, and perform additional testing. Use ASTM E 178 to evaluate potential statistically outlying data.

If the project personnel cannot resolve a dispute and the dispute affects payment or could result in incorporating nonconforming product, the department will use third party testing to resolve the dispute. The department's central office laboratory, or a mutually agreed on independent testing laboratory, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent laboratory. The department may use third party tests to evaluate the quality of questionable materials and determine the appropriate payment. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

**B.10 Acceptance**
The department will accept the material tested under this provision based on the contractor QC tests unless it is shown through verification testing or the dispute resolution process that the contractor's test results are in error.

**C (Vacant)**

**D (Vacant)**

**E Payment**
Costs for furnishing all sampling, testing, and documentation required under this special provision are incidental to the work. If the contractor fails to perform the work required under this special provision, the department may reduce the contractor's pay. The department will administer pay reduction under the non-performance of QMP administrative item.

## 71. Backfill Controlled Low Strength, Item 209.0200.S.

**A Description**
This special provision describes furnishing and placing a controlled low strength material designed for use as backfill in trenches for culverts, sewers, utilities, or similar structures, as backfill behind bridges abutments, or as fill for the abandonment of culverts, pipes, or tanks.

**B Materials**
Provide controlled low strength backfill that consists of a designed cementitious mixture of natural or processed materials. Allowable materials include natural sand, natural gravel, produced sand, foundry sand, produced gravel, fly ash, Portland cement, and other broken or fragmented mineral materials. The designed mixture shall be self-leveling and shall be free of shrinkage after hardening. Design the mixture to reach a state of hardening such that it can support foot traffic in no more than 24 hours. Provide a mixture that also meets the following requirements.

| Test | Method | Value |
|---|---|---|
| Flow (inch) | ASTM D-6103 | 9 min |
| Compressive Strength (psi) | ASTM D-6024 | 20-40 @ 14 days<br>40-80 @ 28 days<br>80-120 @ 90 days |

Chemical admixtures to control air content and setting time are allowable. Ten days prior to placement, furnish the engineer with a design mix detailing all components and their proportions in the mix. Also, provide documentation from the supplier of the industrial byproducts that the foundry sand and fly ash used in the mixture meet the requirements for Industrial Byproducts Categories 1, 2, 3, or 4 in NR 538 of the Wisconsin Administrative Code for use as a confined geotechnical fill.

**C Construction**

Place controlled low strength backfill at the locations and to the lines and grades as shown on the plan. Proportion and mix materials to produce a product of consistent texture and flow characteristics. The engineer may reject any materials exhibiting a substantial change in properties, appearance, or composition.

If the official Weather Bureau forecast for the construction site predicts temperatures at or below freezing within the next 24 hours after placement of controlled low strength backfill, protect the placed materials from freezing during that time period. If the temperature is not forecast to rise above 40º F for 72 hours after placement, the engineer may require protection from freezing for up to 72 hours.

No controlled low strength backfill shall be allowed to enter any stream, lake, or sewer system. The contractor shall be responsible for any clean up or remediation costs resulting from such occurrences.

**D Measurement**

The department will measure Backfill Controlled Low Strength in volume by the cubic yard of material placed and accepted. Such volume shall be computed from actual measurements of the dimensions of the area to be backfilled. In irregular or inaccessible areas, the engineer may allow volume to be determined by other appropriate methods.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 209.0200.S | Backfill Controlled Low Strength | CY |

Payment is full compensation for designing the mix; supplying all materials; preparing the proportioned mix; hauling it to the construction site; placing the material; and protecting it from freezing.

209-010 (20090901)

## 72. Select Crushed Material.

*Modify the standard specs as follows:*

*Replace standard spec 312.2(6) with the following:*

The department will assess select crushed material acceptability based primarily on the engineer's visual inspection. The department may require contractor to sample, test and report gradation or fracture results to show conformance of material. One test per source, production process or change of production process may be required.

*Replace standard spec 312.5(2) with the following:*

Payment for Select Crushed Material is full compensation for providing and compacting select crushed material and all work necessary to provide gradation or fracture test results.
SEF Rev. 14_1212

## 73. QMP Base Aggregate.

### A Description

### A.1 General

(1) This special provision describes contractor quality control (QC) sampling and testing for base aggregates, documenting those test results, and documenting related production and placement process changes. This special provision also describes department quality verification (QV), independent assurance (IA), and dispute resolution.

(2) Conform to standard spec 301, standard spec 305, and standard spec 310 as modified here in this special provision. Apply this special provision to material placed under all of the Base Aggregate Dense and Base Aggregate Open Graded bid items, except do not apply this special provision to material classified as reclaimed asphaltic pavement placed under the Base Aggregate Dense bid items.

(3) Do not apply this special provision to material placed under the Aggregate Detours, Salvaged Asphaltic Pavement Base, Breaker Run, Select Crushed, Pit Run, Subbase, or Riprap bid items.

(4) Provide and maintain a quality control program, defined as all activities related to and documentation of the following:
1. Production and placement control and inspection.
2. Material sampling and testing.

(5) Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes required sampling and testing procedures. The contractor may obtain the CMM from the department's web site at:
http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/rdwy/cmm.aspx

### A.2 Contractor Testing for Small Quantities

(1) The department defines a small quantity, for each individual Base Aggregate bid item, as a plan quantity of 9000 tons or less of material as shown in the schedule of items under that bid item.

(2) The requirements under this special provision apply equally to a small quantity for an individual bid item except as follows:

1. The contractor need not submit a full quality control plan but shall provide an organizational chart to the engineer including names, telephone numbers, and current certifications of all persons involved in the quality control program for material under affected bid items.
2. Divide the aggregate into uniformly sized sublots for testing as follows:

| Plan Quantity | Minimum Required Testing |
|---|---|
| ≤ 1500 tons | One test from production, load-out, or placement at the contractor's option[1] |
| > 1500 tons and ≤ 6000 tons | Two tests of the same type, either from production, load-out, or placement at the contractor's option[1] |
| > 6000 tons and ≤ 9000 tons | Three placement tests[2] [3] |

[1] If using production tests for acceptance, submit test results to the engineer for review prior to incorporating the material into the work. Production test results are valid for a period of 3 years.

[2] For 3-inch material, obtain samples at load-out.

[3] If the actual quantity overruns 9000 tons, create overrun sublots to test at a rate of one additional placement test for each 3000 tons, or fraction of 3000 tons, of overrun.

3. No control charts are required. Submit aggregate load-out and placement test results to the engineer within one business day of obtaining the sample. Assure that all properties are within the limits specified for each test.
4. Department verification testing is optional for quantities of 6000 tons or less.

(3) Material represented by a sublot with any property outside the specification limits is nonconforming. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

## B Materials

### B.1 Quality Control Plan

(1) Submit a comprehensive written quality control plan to the engineer at or before the pre-construction meeting. Do not place base before the engineer reviews and comments on the plan. Construct the project as that plan provides.

(2) Do not change the quality control plan without the engineer's review. Update the plan with changes as they become effective. Provide a current copy of the plan to the engineer and post in each of the contractor's laboratories as changes are adopted. Ensure that the plan provides the following elements:

1. An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of QC personnel.
2. The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication means that will be used, and action time frames.
3. A list of source and processing locations, section and quarter descriptions, for all aggregate materials requiring QC testing.
4. Test results for wear, sodium sulfate soundness, freeze/thaw soundness, and plasticity index of all aggregates requiring QC testing. Obtain this information from the region materials unit or from the engineer.
5. Descriptions of stockpiling and hauling methods.
6. Locations of the QC laboratory, retained sample storage, and where control charts and other documentation is posted.
7. An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.

**B.2 Personnel**

(1) Have personnel certified under the department's highway technician certification program (HTCP) perform sampling, testing, and documentation as follows:

| Required Certification Level: | Sampling or Testing Roles: |
|---|---|
| Aggregate Technician IPP<br>Aggregate Sampling Technician<br>Aggregate Assistant Certified Technician (ACT-AGG) | Aggregate Sampling[1] |
| Aggregate Technician IPP<br>Aggregate Assistant Certified Technician (ACT-AGG) | Aggregate Gradation Testing, Aggregate Fractured Particle Testing, Aggregate Liquid Limit and Plasticity Index Testing |

[1] Plant personnel under the direct observation of an aggregate technician certified at level one or higher may operate equipment to obtain samples.

(2) A certified technician must coordinate and take responsibility for the work an ACT performs. Have a certified technician ensure that all sampling and testing is performed correctly, analyze test results, and post resulting data. No more than one ACT can work under a single certified technician.

**B.3 Laboratory**

(1) Perform QC testing at a department-qualified laboratory. Obtain information on the Wisconsin laboratory qualification program from:

Materials Management Section
3502 Kinsman Blvd.
Madison, WI 53704
Telephone: (608) 246-5388
http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/qual-lab-req.aspx

## B.4 Quality Control Documentation

### B.4.1 General

(1) Submit base aggregate placement documentation to the engineer within 10 business days after completing base placement. Ensure that the submittal is complete, neatly organized, and includes applicable project records and control charts.

### B.4.2 Records

(1) Document all placement observations, inspection records, and control adjustments daily in a permanent field record. Also include all test results in the project records. Provide test results to the engineer within 6 hours after obtaining a sample. For 3-inch base, extend this 6-hour limit to 24 hours. Post or distribute tabulated results using a method mutually agreeable to the engineer and contractor.

### B.4.3 Control Charts

(1) Plot gradation and fracture on the appropriate control chart as soon as test results are available. Format control charts according to CMM 8.30. Include the project number on base placement control charts. Maintain separate control charts for each base aggregate size, source or classification, and type.

(2) Provide control charts to the engineer within 6 hours after obtaining a sample. For 3-inch base, extend this 6-hour limit to 24 hours. Post or distribute charts using a method mutually agreeable to the engineer and contractor. Update control charts daily to include the following:

1. Contractor individual QC tests.
2. Department QV tests.
3. Department IA tests.
4. Four-point running average of the QC tests.

(3) Except as specified under B.8.2.1 for nonconforming QV tests, include only QC tests in the running average. The contractor may plot process control or informational tests on control charts, but do not include these tests, conforming QV tests, or IA tests in the running average.

## B.5 Contractor Testing

(1) Test gradation, fracture, liquid limit and plasticity index during placement for each base aggregate size, source or classification, and type.

(2) Test gradation once per 3000 tons of material placed. Determine random sample locations and provide those sample locations to the engineer. Obtain samples after the material has been bladed, mixed, and shaped but before compacting; except collect

3-inch samples from the stockpile at load-out. Do not sample from material used to maintain local traffic or from areas of temporary base that will not have an overlying pavement. On days when placing only material used to maintain local traffic or only temporary base that will not have an overlying pavement, no placement testing is required.

(3) Split each contractor QC sample and identify it according to CMM 8.30. Retain the split for 7 calendar days in a dry, protected location. If requested for department comparison testing, deliver the split to the engineer within one business day.

(4) The engineer may require additional sampling and testing to evaluate suspect material or the technician's sampling and testing procedures.

(5) Test fracture for each gradation test until the fracture running average is above the lower warning limit. Subsequently, the contractor may reduce the frequency to one test per 10 gradation tests if the fracture running average remains above the warning limit.

(6) Test the liquid limit and plasticity index for the first gradation test. Subsequently, test the liquid limit and plasticity index a minimum of once per 10 gradation tests.

## B.6 Test Methods

### B.6.1 Gradation

(1) Test gradation using a washed analysis conforming to the following as modified in CMM 8.60:

Gradation..... AASHTO T 27
Material finer than the No. 200 sieve..... AASHTO T 11

(2) For 3-inch base, if 3 consecutive running average points for the percent passing the No. 200 sieve are 8.5 percent or less, the contractor may use an unwashed analysis. Wash at least one sample out of 10. If a single running average for the percent passing the No. 200 sieve exceeds 8.5 percent, resume washed analyses until 3 consecutive running average points are again 8.5 percent passing or less.

(3) Maintain a separate control chart for each sieve size specified in standard spec 305 or standard spec 310 for each base aggregate size, source or classification, and type. Set control and warning limits based on the standard specification gradation limits as follows:

1. Control limits are at the upper and lower specification limits.
2. There are no upper warning limits for sieves allowing 100 percent passing and no lower control limits for sieves allowing 0 percent passing.
3. Dense graded warning limits, except for the No. 200 sieve, are 2 percent within the upper and lower control limits. Warning limits for the No. 200 sieve are set 0.5 percent within the upper and lower control limits.
4. Open graded warning limits for the 1-inch, 3/8-inch, and No. 4 sieves are 2 percent within the upper and lower control limits. Upper warning limits for the No. 10, No. 40, and No. 200 sieves are 1 percent inside the upper control limit.

### B.6.2 Fracture

(1) Test fracture conforming to CMM 8.60. The engineer will waive fractured particle testing on quarried stone.

(2) Maintain a separate fracture control chart for each base aggregate size, source or classification, and type. Set the lower control limit at the contract specification limit, either specified in another special provision or in table 301-2 of standard spec 301.2.4.5. Set the lower warning limit 2 percent above the lower control limit. There are no upper limits.

### B.6.3 Liquid Limit and Plasticity

(1) Test the liquid limit and plasticity according to AASHTO T 89 and T 90.

(2) Ensure the material conforms to the limits specified in standard spec table 301-2.

## B.7 Corrective Action

### B.7.1 General

(1) Consider corrective action when the running average trends toward a warning limit. Take corrective action if an individual test exceeds the contract specification limit. Document all corrective actions both in the project records and on the appropriate control chart.

### B.7.2 Placement Corrective Action

(1) Do not blend additional material on the roadbed to correct gradation problems.

(2) Notify the engineer whenever the running average exceeds a warning limit. When 2 consecutive running averages exceed a warning limit, the engineer and contractor will discuss appropriate corrective action. Perform the engineer's recommended corrective action and increase the testing frequency as follows:

1. For gradation, increase the QC testing frequency to at least one randomly sampled test per 1000 tons placed.
2. For fracture, increase the QC testing frequency to at least one test per gradation test.

(3) If corrective action improves the property in question such that the running average after 4 additional tests is within the warning limits, the contractor may return to the testing frequency specified in B.5.3. If corrective action does not improve the property in question such that the running average after 4 additional individual tests is still in the warning band, repeat the steps outlined above starting with engineer notification.

(4) If the running average exceeds a control limit, material starting from the first running average exceeding the control limit and ending at the first subsequent running average inside the control limit is nonconforming and subject to pay reduction.

(5) For individual test results significantly outside the control limits, notify the engineer, stop placing base, and suspend other activities that may affect the area in question. The engineer and contractor will jointly review data, data reduction, and data analysis; evaluate sampling and testing procedures; and perform additional testing as required to determine the extent of potentially unacceptable material. The engineer may direct the contractor to remove and replace that material. Individual test results are significantly outside the control limits if meeting one or more of the following criteria:

1. A gradation control limit for the No. 200 sieve is exceeded by more than 3.0 percent.
2. A gradation control limit for any sieve, except the No. 200, is exceeded by more than 5.0 percent.
3. The fracture control limit is exceeded by more than 10.0 percent.

## B.8 Department Testing

### B.8.1 General

(1) The department will conduct verification testing to validate the quality of the product and independent assurance testing to evaluate the sampling and testing. The department will provide the contractor with a listing of names and telephone numbers of all QV and IA personnel for the project, and provide test results to the contractor within 2 business days after the department obtains the sample.

### B.8.2 Verification Testing

#### B.8.2.1 General

(1) The department will have an HTCP technician, or ACT working under a certified technician, perform QV sampling and testing. Department verification testing personnel must meet the same certification level requirements specified in B.2 for contractor testing personnel for each test result being verified. The department will notify the contractor before sampling so the contractor can observe QV sampling.

(2) The department will conduct QV tests of each base aggregate size, source or classification, and type during placement conforming to the following:

1. One non-random test on the first day of placement.
2. At least one random test per 30,000 tons, or fraction of 30,000 tons, placed.

(3) The department will sample randomly, at locations independent of the contractor's QC work, collecting one sample at each QV location. The department will collect QV samples after the material has been bladed, mixed, and shaped but before compacting; except, for 3-inch aggregates, the department will collect samples from the stockpile at load-out. The department will split each sample, test half for QV, and retain half.

(4) The department will conduct QV tests in a separate laboratory and with separate equipment from the contractor's QC tests. The department will use the same methods specified for QC testing.

(5) The department will assess QV results by comparing to the appropriate specification limits. If QV test results conform to the specification, the department will take no further action. If QV test results are nonconforming, add the QV to the QC test results as if it were an additional QC test.

### B.8.3 Independent Assurance

(1) Independence assurance is unbiased testing the department performs to evaluate the department's QV and the contractor's QC sampling and testing including personnel qualifications, procedures, and equipment. The department will perform an IA review according to the department's independent assurance program. That review may include one or more of the following:

1. Split sample testing.
2. Proficiency sample testing.
3. Witnessing sampling and testing.
4. Test equipment calibration checks.
5. Reviewing required worksheets and control charts.
6. Requesting that testing personnel perform additional sampling and testing.

(2) If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend placement until action is taken. Resolve disputes as specified in B.9.

### B.9 Dispute Resolution

(1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate sampling and testing procedures, and perform additional testing. Use ASTM E 178 to evaluate potential statistically outlying data.

(2) Production test results, and results from other process control testing, may be considered when resolving a dispute.

(3) If the project personnel cannot resolve a dispute, and the dispute affects payment or could result in incorporating non-conforming product, the department will use third party testing to resolve the dispute. The department's central office laboratory, or a mutually agreed on independent testing laboratory, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent laboratory. The department may use third party test results to evaluate the quality of questionable materials and determine the appropriate payment. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

### C (Vacant)

**D (Vacant)**

**E Payment**

(1) Costs for all sampling, testing, and documentation required under this special provision are incidental to this work. If the contractor fails to perform the work required under this special provision, the department may reduce the contractor's pay. The department will administer pay reduction under the non-performance of QMP administrative item.

(2) For material represented by a running average exceeding a control limit, the department will reduce pay by 10 percent of the contract price for the affected Base Aggregate bid items listed in subsection A. The department will administer pay reduction under the Nonconforming QMP Base Aggregate Gradation or Nonconforming QMP Base Aggregate Fracture Administrative items. The department will determine the quantity of nonconforming material as specified in B.7.2.

301-010 (20100709)

## 74. Concrete Pavement Approach Slab.

When adjacent to Concrete Pavement 12-Inch Special, Concrete Pavement Approach Slabs on Zoo Interchange will require high performance dowel bars in accordance to the Special Provision Concrete Pavement12-Inch Special.
SEF Rev. 14_0814

## 75. Concrete Maturity Testing.

**A Description**

This special provision requires using concrete maturity testing to determine strength for project control of concrete pavement, falsework removal, and structural concrete under the designated standard specs as follows:

| | |
|---|---|
| Duration of the curing period | standard spec 415.3.12 |
| Duration of the cold weather protection period | standard spec 415.3.13 |
| Opening to service | standard spec 415.3.15 |
| Removing falsework | standard spec 502.3.4.2 |
| Duration of the required curing period | standard spec 502.3.8 |
| Duration of the cold weather protection period | standard spec 502.3.9 |
| Opening to service | standard spec 502.3.10.1 |

The requirement for determining strength by the concrete maturity testing method supersedes all provisions for strength determination by other methods or provisions based on equivalent days within those designated subsections. The concrete maturity testing requirement also applies to all other provisions referencing strength determination under these designated subsections.

**B Materials**
Provide a maturity testing system that uses data-encrypted sensor devices permanently embedded in the field-placed concrete. Data-encrypted sensors have a chip that records both temperature and time information that can be downloaded to a reading device not permanently attached to those sensors.

Provide the department with a maturity reading device for each maturity testing system utilized on the project. Devices provided for the department use will become department property under the contract.

**C Construction**
Perform concrete maturity testing in accordance to standard spec 502.3.10.1.3.3. Develop a strength/maturity relationship for each concrete mix design used under the contract. Base that relationship on strength results of cylinders from pavement, appurtenant construction, ancillary concrete, or structural masonry units incorporated into the work and using those same mixes.

**D (Vacant)**

**E Payment**
No additional payment will be made by the department for maturity testing.
SEF Rev. 14_1211

## 76. QMP Ride; Incentive IRI Ride, Item 440.4410.S.

**A Description**
(1) This special provision describes profiling pavements with a non-contact profiler, locating areas of localized roughness, and determining the International Roughness Index (IRI) for each wheel path segment.

(2) Profile the final riding surface of all mainline pavements, all system ramps and all collector ramps and service ramps BB, BC, GD, GE, and SB**.** Include auxiliary lanes in Category I and II segments; crossroads with county, state or U.S. highway designations greater than 1500 feet in continuous length; bridges, bridge approaches; and railroad crossings. Exclude roundabouts and pavements within 150 feet of the points of curvature of roundabout intersections.

(3) The engineer may direct straightedging under standard spec 415.3.10 for pavement excluded from localized roughness under C.5.2 (1); for bridges; and for roundabouts and pavements within 150 feet of the points of curvature of roundabout intersections. Other surfaces being tested under this provision are exempt from straightedging requirements.

**B (Vacant)**

## C Construction

### C.1 Quality Control Plan

(1) Submit a written quality control plan to the engineer at or before the pre-pave meeting. Ensure that the plan provides the following elements:

1. An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of all quality control personnel.
2. The process by which quality control information and corrective action efforts will be disseminated to the appropriate persons. Include a list of recipients, the communication means that will be used, and action time frames.
3. The methods and timing used for monitoring and/or testing ride quality throughout the paving process. Also indicate the approximate timing of acceptance testing in relation to the paving operations.
4. The segment locations of each profile run used for acceptance testing.
5. Traffic Control Plan

### C.2 Personnel

(1) Have a profiler operator, certified under the department's highway technician certification program (HTCP), operate the equipment, collect the required data, and analyze the results using the methods taught in the HTCP profiling course. Ensure that an HTCP-certified profiler operator supervises data entry into the material records system (MRS).

### C.3 Equipment

(1) Furnish a profile-measuring device capable of measuring IRI from the list of department-approved devices published on the department's web site:
http://wisconsindot.gov/Documents/doing-bus/eng-consultants/cnslt-rsrces/tools/qmp/profilers.pdf

(2) Unless the engineer and contractor mutually agree otherwise, arrange to have a calibrated profiler available when paving the final riding surface.

(3) Perform daily calibration verification of the profiler using test methods according to the manufacturer's recommendations. Notify the engineer before performing the calibration verification. If the engineer requests, arrange to have the engineer observe the calibration verification and operation. Maintain records of the calibration verification activities, and provide the records to the engineer upon request.

### C.4 Testing

#### C.4.1 Run and Reduction Parameters

(1) Enter the equipment-specific department-approved filter settings and parameters given in the approved profilers list on the department's QMP ride web site.
http://wisconsindot.gov/Documents/doing-bus/eng-consultants/cnslt-rsrces/tools/qmp/profilers.pdf

### C.4.2 Contractor Testing

(1) Operate profilers within the manufacturer's recommended speed tolerances. Perform all profile runs in the direction of travel. Measure the longitudinal profile of each wheel track of each lane. The wheel tracks are 6.0 feet apart and centered in the traveled way of the lane.

(2) Coordinate with the engineer to schedule profile runs for acceptance. The department may require testing to accommodate staged construction or if corrective action may be required.

(3) Measure the profiles of each standard or partial segment. Define primary segments starting at a project terminus and running contiguously along the mainline to the other project terminus. Field-locate the beginning and ending points for each profile run. When applicable, align segment limits with the sublot limits used for testing under the QMP Concrete Pavement specification. Define segments one wheel path wide and distinguished by length as follows:

1. Standard segments are 500 feet long.
2. Partial segments are less than 500 feet long.

(4) Treat partial segments as independent segments.

The department will categorize each standard or partial segment as follows:

| **Segments with a Posted Speed Limit of 55 MPH or Greater** | |
|---|---|
| **Category** | **Description** |
| HMA I | Asphalt pavement with multiple opportunities to achieve a smooth ride. The following operations performed under this contract are considered as opportunities: a layer of HMA, a leveling or wedging layer of HMA, and diamond grinding or partial depth milling of the underlying pavement surface. |
| HMA II | Asphalt pavement with a single opportunity to achieve a smooth ride. |
| HMA III | Asphalt pavement segments containing any portion of a bridge, bridge approach, railroad crossing, or intersection. An intersection is defined as the area within the points of curvature of the intersection radii. |
| PCC II | Concrete pavement. |
| PCC III | Concrete pavement segments containing any portion of a bridge, bridge approach, railroad crossing, intersection or gap. An intersection is defined as the area within the points of curvature of the intersection radii. |

| **Segments with Any Portion Having a Posted Speed Limit Less Than 55 MPH** | |
|---|---|
| **Category** | **Description** |
| HMA IV | Asphalt pavement including intersections, bridges, approaches, and railroad crossings. |
| PCC IV | Concrete pavement including gaps, intersections, bridges, approaches, and railroad crossings. |

### C.4.3 Verification Testing

(1) The department may conduct verification testing (QV) to validate the quality of the product. A HTCP certified profiler operator will perform the QV testing. The department will provide the contractor with a listing of the names and telephone numbers of all verification personnel for the project.

(2) The department will notify the contractor before testing so the contractor can observe the QV testing. Verification testing will be performed independent of the contractor's QC work using separate equipment from the contractor's QC tests. The department will provide test results to the contractor within 1 business day after the department completes the testing.

(3) The engineer and contractor will jointly investigate any testing discrepancies. The investigation may include additional testing as well as review and observation of both the department's and contractor's testing procedures and equipment. Both parties will document all investigative work.

(4) If the contractor does not respond to an engineer request to resolve a testing discrepancy, the engineer may suspend production until action is taken. Resolve disputes as specified in C.6.

### C.4.4 Documenting Profile Runs

(1) Compute the IRI for each segment and analyze areas of localized roughness using the ProVAL software. Also, the contractor shall prepare the ProVAL Ride Quality Module Reports, showing the IRI for each segment and the areas of localized roughness exceeding an IRI of 200 in/mile. Use ride quality module report as follows:

| | Fixed Interval | Continuous (Localized Roughness) |
|---|---|---|
| Base-length | 500' | 25' |
| Threshold | 140"/Mile | 200"/Mile |

The ProVAL software is available for download at:
http://www.roadprofile.com.

(2) As part of the profiler software outputs and ProVAL reports, document the areas of localized roughness. Field-locate the areas of localized roughness prior to the engineer's assessment for corrective actions. Document the reasons for areas excluded and submit to the engineer.

(3) Within 5 business days after completing profiling of the pavement covered under this special provision, unless the engineer and contractor mutually agree to a different timeline, submit the electronic ProVAL project file containing the .ppf files for each profiler acceptance run data and Ride Quality Module Reports, in .pdf format using the department's Materials Reporting System (MRS) software available on the department's web site:
http://www.atwoodsystems.com/mrs

Notify the engineer when the Profiler Acceptance Run data and the Ride Quality Report have been submitted to the MRS system.

## C.5 Corrective Actions

### C.5.1 General

(1) Analyze the data from the PROVAL reports and make corrective action recommendations to the department. The department will independently assess whether a repair will help or hurt the long-term pavement performance before deciding on corrective action. Correct the ride as the engineer directs in writing.

### C.5.2 Corrective Actions for Localized Roughness

(1) Apply localized roughness requirements to all pavements, including HMA III, PCC III, HMA IV, and PCC IV; except localized roughness requirements will not be applied to pavements within 25 feet of the following surfaces if they are not constructed under this contract: bridges, bridge approaches, or railroad crossings. The department may direct the contractor to make corrections to the pavement within the 25-foot exclusionary zones.

(2) The engineer will review each individual wheel track for areas of localized roughness. The engineer will assess areas of localized roughness within 5 business days of receiving notification that the reports were uploaded. The engineer will analyze the report documenting areas that exceed an IRI of 200 in/mile and do one of the following for each location:

1. Direct the contractor to correct the area to minimize the effect on the ride.
2. Leave the area of localized roughness in place with no pay reduction.
3. Except for HMA IV and PCC IV segments, assess a pay reduction as follows for each location in each wheel path:

| Localized Roughness IRI (in/mile) | Pay Reduction[1] (dollars) |
|---|---|
| > 200 | (Length in Feet) x (IRI –200) |

[1] A maximum $250 pay reduction may be assessed for locations of localized roughness that are less than or equal to 25 feet long. Locations longer than 25 feet may be assessed a maximum pay reduction of $10 per foot.

(3) The engineer will not direct corrective action or assess a pay reduction for an area of localized roughness without independent identification of that area as determined by physically riding the pavement. For corrections, use only techniques the engineer approves.

(4) Re-profile corrected areas to verify that the IRI is less than 140 in/mile after correction. Submit a revised ProVAL ride quality module report to the reference documents section of the MRS for the corrected areas to validate the results.

### C.5.3 Corrective Actions for Excessive IRI

(1) If an individual segment IRI exceeds 140 in/mile for HMA I, HMA II, and PCC II pavements after correction for localized roughness, the engineer may require the contractor to correct that segment. Correct the segment final surface as follows:

HMA I: Correct to an IRI of 60 in/mile using whichever of the following methods as approved by the engineer:
Mill and replace the full lane width of the riding surface excluding the paved shoulder.
Continuous diamond grinding or fine-tooth milling the full lane width, if required, of the riding surface including adjustment of the paved shoulders.

HMA II: Correct to an IRI of 85 in/mile using whichever of the following methods as approved by the engineer:
Mill and replace the full lane width of the riding surface excluding the paved shoulder.
Continuous diamond grinding or fine-tooth milling of the full lane width, if required, of the riding surface including adjustment of the paved shoulders

PCC II: Correct to an IRI of 85 in/mile using whichever of the following methods as approved by the engineer:
Continuous diamond grinding of the full lane width, if required, of the riding surface including adjustment of the paved shoulders. Conform to sections C.1 through C.4 of Concrete Pavement Continuous Diamond Grinding Special provision contained elsewhere in the contract.
Remove and replace the full lane width of the riding surface.

(2) Re-profile corrected segments to verify that the final IRI meets the above correction limits and there are no areas of localized roughness. Enter a revised ProVAL ride quality module report for the corrected areas to the reference documents section of the MRS. Segments failing these criteria after correction are subject to the engineer's right to adjust pay for non-conforming work under standard spec 105.3.

### C.6 Dispute Resolution

(1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate testing procedures, and perform additional testing.

(2) If the project personnel cannot resolve a dispute and the dispute affects payment or could result in incorporating nonconforming pavement, the department will use third party testing to resolve the dispute. The department's Quality Assurance Unit, or a mutually agreed on independent testing company, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent tester. The department may use third party tests to evaluate the quality of questionable pavement and determine the appropriate payment.

**D Measurement**

(1) The department will measure Incentive IRI Ride by the dollar, adjusted as specified in E.2.

**E Payment**

**E.1 Payment for Profiling**

(1) Costs for furnishing and operating the profiler, documenting profile results, and correcting the final pavement surface are incidental to the contract. The department will pay separately for engineer-directed corrective action performed within the 25-foot exclusionary zones under C.5.2 as extra work.

**E.2 Pay Adjustment**

(1) The department will pay incentive for ride under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 440.4410.S | Incentive IRI Ride | DOL |

(2) Incentive payment is not limited, either up or down, to the amount the schedule of items shows.

(3) The department will administer disincentives for ride under the Disincentive IRI Ride administrative item.

(4) The department will not assess disincentive on HMA III or PCC III segments. Incentive pay for HMA III and PCC III segments will be according to the requirements for the category of the adjoining segments.

(5) The department will adjust pay for each segment based on the initial IRI for that segment. If corrective action is required, the department will base disincentives on the IRI after correction for pavement meeting the following conditions:

| | |
|---|---|
| All Pavement: | The corrective work is performed in a contiguous, full lane width section 500 feet long, or a length as agreed with the engineer. |
| HMA Pavements: | The corrective work is a mill and inlay or full depth replacement and the inlay or replacement layer thickness conforms to standard spec 460.3.2. |
| Concrete Pavements: | The corrective work is a full depth replacement and conforms to standard spec 415. |

(6) The department will adjust pay for 500-foot long standard segments nominally one wheel path wide using equation "QMP 1.04" as follows:

| HMA I | |
|---|---|
| **Initial IRI (inches/mile)** | **Pay Adjustment[1] (dollars per standard segment)** |
| < 30 | 250 |
| ≥ 30 to <35 | 1750 – (50 x IRI) |
| ≥ 35 to < 60 | 0 |
| ≥ 60 to < 75 | 1000 – (50/3 x IRI) |
| ≥ 75 | -250 |

| HMA II and PCC II | |
|---|---|
| **Initial IRI (inches/mile)** | **Pay Adjustment[1] [2] (dollars per standard segment)** |
| < 50 | 250 |
| ≥ 50 to < 55 | 2750 – (50 x IRI) |
| ≥ 55 to < 85 | 0 |
| ≥ 85 to < 100 | (4250/3) – (50/3 x IRI) |
| ≥ 100 | -250 |

| HMA IV and PCC IV | |
|---|---|
| **Initial IRI (inches/mile)** | **Pay Adjustment[1] [2] (dollars per standard segment)** |
| < 35 | 250 |
| ≥ 35 to < 45 | 1125-(25xIRI) |
| ≥ 45 | 0 |

[1] If department will not assess a ride disincentive for HMA pavement placed in cold weather because of a department-caused delay as specified in 450.5(4) of the contract additional special provisions (ASP 6).

[2] If the engineer directs placing concrete pavement for department convenience, the department will not adjust pay for ride on pavement the department orders the contractor to place when the air temperature falls below 35 F.

(7) The department will prorate the pay adjustment for partial segments based on their length.

## 77. QMP Bridge Ride; Incentive IRI Ride Bridge, Item 440.5020.

### A Description

(1) This special provision describes profiling bridge encounters with a non-contact profiler, locating areas of localized roughness, and determining the International Roughness Index (IRI) for each wheel path segment.

(2) Profile the final riding surface of the bridge encounters for the following structures: B-40-786, B-40-787, B-40-790, B-40-851, B-40-853, B-40-854, B-40-856, B-40-861, B-40-869, B-40-870, B-40-873, B-40-874, B-40-882, B-40-883.

(3) The engineer may direct straightedging under standard spec 415.3.10 for areas within 25 feet past steel armored joints, in the direction of travel. Other surfaces being tested under this provision are exempt from straightedging requirements.

**B (Vacant)**

**C Construction**

**C.1 Quality Control Plan**

(1) Submit a written quality control plan to the engineer at or before the pre-pave and pre-pour meeting. Ensure that the plan provides the following elements:

1. An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of all quality control personnel.
2. The process by which quality control information and corrective action efforts will be disseminated to the appropriate persons. Include a list of recipients, the communication means that will be used, and action time frames.
3. The methods and timing used for monitoring and/or testing ride quality throughout the concrete placement process. Also indicate the approximate timing of acceptance testing in relation to the concrete placement operations.
4. The segment locations of each profile run used for acceptance testing.
5. Traffic control plan if deviating from contract documents.

**C.2 Personnel**

(1) Have a profiler operator, certified under the department's highway technician certification program (HTCP), operate the equipment, collect the required data, and analyze the results using the methods taught in the HTCP profiling course. Ensure that an HTCP-certified profiler operator supervises data entry into the department's materials reporting system (MRS).

**C.3 Equipment**

(1) Furnish a profile-measuring device capable of measuring IRI from the list of department-approved devices published on the department's web site at: http://wisconsindot.gov/Documents/doing-bus/eng-consultants/cnslt-rsrces/tools/qmp/profilers.pdf

(2) Perform daily calibration verification of the profiler using test methods according to the manufacturer's recommendations. Notify the engineer before performing the calibration verification. If the engineer requests, arrange to have the engineer observe the calibration verification and operation. Maintain records of the calibration verification activities, and provide the records to the engineer upon request.

(3) Use self-propelled grinding machines with electronic depth, grade, and slope controls designed for grinding and texturing concrete.

1. Equip grinding machines with diamond blades and a vacuuming system capable of removing liquid and solid residue from the ground surface. Shroud the machine to prevent discharging loosened material into adjacent work areas or live traffic lanes.
2. Ensure that the machine, including the grinding head, weighs 35,000 pounds or more, will grind a strip at least 4 feet wide, and has an effective wheel base of 25 feet or more. Do not use equipment that causes raveling, aggregate fractures, joint deflection, or other damage to material remaining in place.
3. Maintain equipment in proper working order. Ensure that the match and depth control wheels are round. Stop grinding and immediately replace out-of-round wheels.

## C.4 Testing

### C.4.1 Run and Reduction Parameters

(1) Enter the equipment-specific department-approved filter settings and parameters given in the approved profilers list on the department's QMP ride web site.

http://wisconsindot.gov/Documents/doing-bus/eng-consultants/cnslt-rsrces/tools/qmp/profilers.pdf

### C.4.2 Contractor Testing

(1) Field-locate the beginning and ending points of the bridge encounter. Define bridge encounter as 25 feet of pavement leading to and from the approach slabs, the approach slabs on both ends of the bridge, and the bridge deck.

(2) Operate profilers within the manufacturer's recommended speed tolerances. Perform all profile runs in the direction of travel. Measure the longitudinal profile of each wheel track of each lane of the bridge encounter. The wheel tracks are 6.0 feet apart and centered in the traveled way of the lane.

(3) Coordinate with the engineer to schedule profile runs for acceptance. The department may require testing to accommodate staged construction or if corrective action may be required. Complete profile runs before longitudinally grooving.

(4) Measure the profiles of each standard or partial segment. Define segments one wheel path wide and distinguished by length as follows:

1. Standard segments are 500 feet long.
2. Partial segments are greater than 250 feet and less than 500 feet long.
3. Add partial segments that are 250 feet long or less to the previous segment.

Treat partial segments as independent segments.

### C.4.3 Verification Testing

(1) The department may conduct quality verification (QV) testing to validate the ride quality of the bridge encounter. An HTCP-certified profiler operator will perform the

QV testing. The department will provide the contractor with a listing of the names and telephone numbers of all verification personnel for the project.

(2) The department will notify the contractor before testing so the contractor can observe the QV testing. Verification testing is performed independent of the contractor's QC work using separate equipment from the contractor's QC tests. The department will provide test results to the contractor within 1 business day after the department completes the testing.

(3) The engineer and contractor will jointly investigate any testing discrepancies. The investigation may include additional testing as well as review and observation of both the department's and contractor's testing procedures and equipment. Both parties will document all investigative work.

(4) If the contractor does not respond to an engineer request to resolve a testing discrepancy, the engineer may suspend production until action is taken. Resolve disputes as specified in C.6.

**C.4.4 Documenting Profile Runs**

(1) Compute the IRI for each segment and analyze areas of localized roughness using the ProVAL software. The ProVAL software is available for download at:

http://www.roadprofile.com.

(2) Prepare the ProVAL ride quality module reports showing the IRI for each segment and areas of localized roughness exceeding 200 in/mile. Develop ride quality module reports using the following parameters:

| | Fixed Interval (Segment IRI) | Continuous (Localized Roughness) |
|---|---|---|
| Base-length | 500' | 25' |
| Threshold | 140"/mile | 200"/mile |

(3) As part of the profiler software outputs and ProVAL reports, document the areas of localized roughness. Field-locate the areas of localized roughness prior to the engineer's assessment for corrective actions.

Within 5 business days after completing profiling of the bridge encounter covered under this special provision, unless the engineer and contractor mutually agree to a different timeline, upload the electronic ProVAL project file containing the .ppf files for each profiler acceptance run data, and ride quality module reports in pdf format, using the MRS software available at:

http://www.atwoodsystems.com/

Notify the engineer when the profiler acceptance run data and the ride quality module report have been uploaded to the MRS system.

## C.5 Corrective Actions

### C.5.1 General

(1) Analyze the data from the ProVAL reports and make corrective action recommendations to the engineer. The engineer will independently assess whether a repair will help or hurt the long-term performance before deciding on corrective action. Correct the ride as the engineer directs in writing.

(2) Do not remove more than a total depth of 0.5 inches of material by corrective diamond grinding.

(3) Do not diamond-grind within 1.5 feet of steel armored expansion joint systems.

(4) Remove solid and liquid grinding residues from the roadway by vacuuming. Dispose of residue and water at an acceptable material disposal site located off the project limits and as shown in the ECIP.

(5) Complete corrective actions and all profile runs before longitudinally grooving.

### C.5.2 Corrective Actions for Localized Roughness

(1) Apply localized roughness requirements to the bridge encounter, except localized roughness requirements will not be applied to the riding surface within 25 feet past steel armored joints, in the direction of travel.

(2) The engineer may direct straight-edging under standard spec 415.3.10 for riding surfaces excluded from localized roughness under C.5.2 (1).

(3) The engineer will review each individual wheel track for areas of localized roughness. The engineer will assess areas of localized roughness within 5 business days of receiving notification that the reports were uploaded. The engineer will analyze the report documenting areas that exceed an IRI of 200 in/mile and do one of the following for each location:

1. Direct the contractor to correct the area to minimize the effect on the ride.
2. Leave the area of localized roughness in place with no pay reduction.

(4) The engineer will not direct corrective action for an area of localized roughness without independent identification of that area as determined by physically riding the surface. For corrections, use only techniques the engineer approves.

(5) Re-profile to verify that the segment IRI is less than 140 in/mile after correction. Upload a revised ProVAL ride quality module report, in pdf format, to the MRS for the corrected areas to validate the results.

### C.5.3 Corrective Actions for Excessive Segment IRI

(1) If an individual segment IRI exceeds 140 in/mile after correction for localized roughness, the engineer may require the contractor to correct that segment to an IRI less than 140 in/mile using one of the following two methods.

1. Continuous diamond grinding of the full lane width, if required, of the riding surface including adjustment of the adjacent lanes and shoulders.
2. Other corrective action as approved by the department's Bureau of Structures, Structure Design Unit.

(2) Re-profile corrected segments to verify that the final segment IRI meets the above correction limit and there are no areas of localized roughness. Enter a revised ProVAL ride quality module report, in pdf format, for the corrected areas to the MRS. Segments failing these criteria after correction are subject to the engineer's right to adjust pay for non-conforming work under standard spec 105.3.

**C.6 Dispute Resolution**

(1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate testing procedures, and perform additional testing.

(2) If the project personnel cannot resolve a dispute and the dispute affects payment or could result in incorporating nonconforming work, the department will use third party testing to resolve the dispute. The department's Quality Assurance Unit, or a mutually agreed on independent testing company, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent tester. The department may use third party tests to evaluate the quality of questionable riding surfaces and determine the appropriate payment.

**D Measurement**

(1) The department will measure Incentive IRI Ride by the dollar, calculated as specified in E.2.

**E Payment**

**E.1 Payment for Profiling**

(1) Costs for furnishing and operating the profiler, and documenting profile results for the bridge encounter are incidental to the contract. Costs for correcting the final riding surface of the bridge deck and structural approach slab, if applicable, are incidental to the contract. The department will pay separately for engineer-directed corrective action performed in other areas of the bridge encounter, under the Grinding for Bridge Ride administrative item.

**E.2 Pay Adjustment**

(1) The department will pay incentive for ride under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 440.5020 | Incentive IRI Ride Bridge | DOL |

(2) Incentive payment is not limited, either up or down, to the amount the schedule of items shows.

(3) The department will adjust pay for each segment based on the initial IRI for that segment.

(4) The department will adjust pay for 500-foot long standard segments nominally one wheel path wide using equation "QMP 1.05" as follows:

| Initial IRI (inches/mile) | Pay Adjustment (dollars per standard segment) |
|---|---|
| 0 to <80 | 1000 |
| ≥80 to <100 | 5000 - (50 x IRI) |
| ≥100 | 0 |

(5) The department will prorate the pay adjustment for non-standard segments based on their length.

## 78. QMP HMA Pavement Nuclear Density.

**A Description**

Replace standard spec 460.3.3.2 (1) and standard spec 460.3.3.2 (4) with the following:

(1) This special provision describes density testing of in-place HMA pavement with the use of nuclear density gauges. Conform to standard spec 460 as modified in this special provision.

(2) Provide and maintain a quality control program defined as all activities and documentation of the following:
1. Selection of test sites.
2. Testing.
3. Necessary adjustments in the process.
4. Process control inspection.

(3) Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes required procedures. Obtain the CMM from the department's web site at:
http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/rdwy/cmm.aspx

(4) The department's Materials Reporting System (MRS) software allows contractors to submit data to the department electronically, estimate pay adjustments, and print selected reports. Qualified personnel may obtain MRS software from the department's web site at:
http://www.atwoodsystems.com/mrs

## B Materials

### B.1 Personnel

(1) Perform HMA pavement density (QC, QV) testing using a HTCP certified nuclear technician I, or a nuclear assistant certified technician (ACT-NUC) working under a certified technician.

(2) If an ACT is performing sampling or testing, a certified technician must coordinate and take responsibility for the work an ACT performs. Have a certified technician ensure that all sampling and testing is performed correctly, analyze test results, and post resulting data. No more than one ACT can work under a single certified technician.

### B.2 Testing

(1) Conform to ASTM D2950 and CMM 8.15 for density testing and gauge monitoring methods. Perform nuclear gauge measurements using gamma radiation in the backscatter position. Perform each test for 4 minutes of nuclear gauge count time.

### B.3 Equipment

#### B.3.1 General

(1) Furnish nuclear gauges from the department's approved product list at http://wisconsindot.gov/Documents/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/ap2015/nuclear-gauge-list-6-22-2015.pdf

(2) Have the gauge calibrated by the manufacturer or an approved calibration service within 12 months of its use on the project. Retain a copy of the manufacturer's calibration certificate with the gauge.

(3) Prior to each construction season, and following any calibration of the gauge, the contractor must perform calibration verification for each gauge using the reference blocks located in the department's central office materials laboratory. To obtain information or schedule a time to perform calibration verification, contact the department's Radiation Safety Officer at:

Materials Management Section
3502 Kinsman Blvd.
Madison, Wisconsin 53704
Telephone: (608) 243-5998

#### B.3.2 Correlation of Nuclear Gauges

##### B.3.2.1 Correlation of QC and QV Nuclear Gauges

(1) Select a representative section of the compacted pavement prior to or on the first day of paving for the correlation process. The section does not have to be the same mix design.

(2) Correlate the 2 or more gauges used for density measurement (QC, QV). The QC and QV gauge operators will perform the correlation on 5 test sites jointly located. Record each density measurement of each test site for the QC, QV and back up gauges.

(3) Calculate the average of the difference in density of the 5 test sites between the QC and QV gauges. Locate an additional 5 test sites if the average difference exceeds 1.0 lb/ft$^3$. Measure and record the density on the 5 additional test sites for each gauge.

(4) Calculate the average of the difference in density of the 10 test sites between the QC and QV gauges. Replace one or both gauges if the average difference of the 10 tests exceeds 1.0 lb/ft$^3$ and repeat correlation process from B.3.2.1 (2).

(5) Furnish one of the QC gauges passing the allowable correlation tolerances to perform density testing on the project.

**B.3.2.2 Correlation Monitoring**

(1) After performing the gauge correlation specified in B.3.2.1, establish a project reference site approved by the department. Clearly mark a flat surface of concrete or asphalt or other material that will not be disturbed during the duration of the project. Perform correlation monitoring of the QC, QV, and all back-up gauges at the project reference site.

(2) Conduct an initial 10 density tests with each gauge on the project reference site and calculate the average value for each gauge to establish the gauge's reference value. Use the gauge's reference value as a control to monitor the calibration of the gauge for the duration of the project.

(3) Check each gauge on the project reference site a minimum of one test per day if paving on the project. Calculate the difference between the gauge's daily test result and its reference value. Investigate if a daily test result is not within 1.5 lb/ft$^3$ of its reference value. Conduct 5 additional tests at the reference site once the cause of deviation is corrected. Calculate and record the average of the 5 additional tests. Remove the gauge from the project if the 5-test average is not within 1.5 lb/ft$^3$ of its reference value established in B.3.2.2(2).

(4) Maintain the reference site test data for each gauge at an agreed location.

**B.4 Quality Control Testing and Documentation**

**B.4.1 Lot and Sublot Requirements**

**B.4.1.1 Mainline Traffic Lanes, Shoulders, and Appurtenances**

(1) A lot consists of the tonnage placed each day for each layer and target density specified in standard spec 460.3.3.1. A lot may include partial sublots.

(2) Divide the roadway into sublots. A sublot is 1500 lane feet for each layer and target density.

(3) A sublot may include HMA placed on more than one day of paving. Test sublots at the pre-determined random locations regardless of when the HMA is placed. No additional testing is required for partial sublots at the beginning or end of a day's paving.

(4) If a resulting partial quantity at the end of the project is less than 750 lane feet, include that partial quantity with the last full sublot of the lane. If a resulting partial quantity at the end of the project is 750 lane feet or more, create a separate sublot for that partial quantity.

(5) Randomly select test locations for each sublot as specified in CMM 8.15 prior to paving and provide a copy to the engineer. Locate and mark QC density test sites when performing the tests. Perform density tests prior to opening the roadway to traffic.

(6) Use Table 1 to determine the number of tests required at each station, depending on the width of the lane being tested. When more than one test is required at a station, offset the tests 10 feet longitudinally from one another to form a diagonal testing row across the lane.

| Lane Width | No. of Tests | Transverse Location |
|---|---|---|
| 5 ft or less | 1 | Random |
| Greater than 5 ft to 9 ft | 2 | Random within 2 equal widths |
| Greater than 9 ft | 3 | Random within 3 equal widths |

**Table 1**

**B.4.1.2 Side Roads, Crossovers, Turn Lanes, Ramps, and Roundabouts**

(1) A lot represents a combination of the total daily tonnage for each layer and target density.

(2) Each side road, crossover, turn lane, ramp, and roundabout must contain at least one sublot for each layer.

(3) If a side road, crossover, turn lane, or ramp is 1500 feet or longer, determine sublots and random test locations as specified in B.4.1.1.

(4) If a side road, crossover, turn lane, or ramp is less than 1500 feet long, determine sublots using a maximum of 750 tons per sublot and perform the number of random tests as specified in Table 2.

| Side Roads, Turn Lanes, Crossovers, Ramps, Roundabouts: Sublot/Layer tonnage | Minimum Number of Tests Required |
|---|---|
| 25 to 100 tons | 1 |
| 101 to 250 tons | 3 |
| 251 to 500 tons | 5 |
| 501 to 750 tons | 7 |

**Table 2**

**B.4.2 Pavement Density Determination**

**B.4.2.1 Mainline Traffic Lanes and Appurtenances**

(1) Calculate the average sublot densities using the individual test results in each sublot.

(2) If all sublot averages are no more than one percent below the target density, calculate the daily lot density by averaging the results of each random QC test taken on that day's material.

(3) If any sublot average is more than one percent below the target density, do not include the individual test results from that sublot when computing the lot average density and remove that sublot's tonnage from the daily quantity for incentive. The tonnage from any such sublot is subject to disincentive pay according to standard spec 460.5.2.2.

**B.4.2.2 Mainline Shoulders**

**B.4.2.2.1 Width Greater Than 5 Feet**

(1) Determine the pavement density as specified in B.4.2.1.

**B.4.2.2.2 Width of 5 Feet or Less**

(1) If all sublot test results are no more than 3.0 percent below the minimum target density, calculate the daily lot density by averaging all individual test results for the day.

(2) If a sublot test result is more than 3.0 percent below the target density, the engineer may require the unacceptable material to be removed and replaced with acceptable material or allow the nonconforming material to remain in place with a 50 percent pay reduction. Determine the limits of the unacceptable material according to B.4.3.

**B.4.2.3 Side Roads, Crossovers, Turn Lanes, Ramps, and Roundabouts**

(1) Determine the pavement density as specified in B.4.2.1.

**B.4.2.4 Documentation**

(1) Document QC density test data as specified in CMM 8.15. Provide the engineer with the data for each lot within 24 hours of completing the QC testing for the lot.

**B.4.3 Corrective Action**

(1) Notify the engineer immediately when an individual test is more than 3.0 percent below the specified minimum in standard spec 460.3.3.1. Investigate and determine the cause of the unacceptable test result.

(2) The engineer may require unacceptable material specified in B.4.3(1) to be removed and replaced with acceptable material or allow the nonconforming material to remain in place with a 50 percent pay reduction. Determine limits of the unacceptable area by measuring density of the layer at 50-foot increments both ahead and behind the point of unacceptable density and at the same offset as the original test site. Continue testing at 50-foot increments until a point of acceptable density is found as specified in standard spec 460.5.2.2(1). Removal and replacement of material may be required if extended testing is in a previously accepted sublot. Testing in a previously accepted sublot will not be used to recalculate a new lot density.

(3) Compute unacceptable pavement area using the product of the longitudinal limits of the unacceptable density and the full sublot width within the traffic lanes or shoulders.

(4) Retesting and acceptance of replaced pavement will be according to standard spec 105.3.

(5) Tests indicating density more than 3.0 percent below the specified minimum, and further tests taken to determine the limits of unacceptable area, are excluded from the computations of the sublot and lot densities.

(6) If 2 consecutive sublot averages within the same paving pass and same target density are more than one percent below the specified target density, notify the engineer and take necessary corrective action. Document the locations of such sublots and the corrective action that was taken.

## B.5 Department Testing

### B.5.1 Verification Testing

(1) The department will have a HTCP certified technician, or ACT working under a certified technician, perform verification testing. The department will test randomly at locations independent of the contractor's QC work. The department will perform verification testing at a minimum frequency of 10 percent of the sublots and a minimum of one sublot per mix design. The sublots selected will be within the active work zone. The contractor will supply the necessary traffic control for the department's testing activities.

(2) The QV tester will test each selected sublot using the same testing requirements and frequencies as the QC tester.

(3) If the verification sublot average is not more than one percent below the specified minimum target density, use the QC tests for acceptance.

(4) If the verification sublot average is more than one percent below the specified target density, compare the QC and QV sublot averages. If the QV sublot average is within 1.0 $lb/ft^3$ of the QC sublot average, use the QC tests for acceptance.

(5) If the first QV/QC sublot average comparison shows a difference of more than 1.0 $lb/ft^3$ each tester will perform an additional set of tests within that sublot. Combine the additional tests with the original set of tests to compute a new sublot average for each tester. If the new QV and QC sublot averages compare to within 1.0 $lb/ft^3$, use the original QC tests for acceptance.

(6) If the QV and QC sublot averages differ by more than 1.0 $lb/ft^3$ after a second set of tests, resolve the difference with dispute resolution specified in B.6. The engineer will notify the contractor immediately when density deficiencies or testing precision exceeding the allowable differences are observed.

### B.5.2 Independent Assurance Testing

(1) Independent assurance is unbiased testing the department performs to evaluate the department's verification and the contractor's QC sampling and testing including personnel qualifications, procedures, and equipment. The department will perform the independent assurance review according to the department's independent assurance program.

### B.6 Dispute Resolution

(1) The testers may perform investigation in the work zone by analyzing the testing, calculation, and documentation procedures. The testers may perform gauge correlation according to B.3.2.1.

(2) The testers may use correlation monitoring according to B.3.2.2 to determine if one of the gauges is out of tolerance. If a gauge is found to be out of tolerance with its reference value, remove the gauge from the project and use the other gauge's test results for acceptance.

(3) If the testing discrepancy cannot be identified, the contractor may elect to accept the QV sublot density test results or retesting of the sublot in dispute within 48 hours of paving. Traffic control costs will be split between the department and the contractor.

(4) If investigation finds that both gauges are in error, the contractor and engineer will reach a decision on resolution through mutual agreement.

### B.7 Acceptance

(1) The department will not accept QMP HMA Pavement Nuclear Density if a non-correlated gauge is used for contractor QC tests.

## C (Vacant)

## D (Vacant)

## E Payment

### E.1 QMP Testing

(1) Costs for all sampling, testing, and documentation required under this special provision are incidental to the work. If the contractor fails to perform the work required under this special provision, the department may reduce the contractor's pay. The department will administer pay reduction under the Non-performance of QMP administrative item.

### E.2 Disincentive for HMA Pavement Density

(1) The department will administer density disincentives according to standard spec 460.5.2.2.

### E.3 Incentive for HMA Pavement Density

(1) Delete standard spec 460.5.2.3.

(2) If the lot density is greater than the minimum specified in standard spec table 460-3 and all individual air voids test results for that mixture are within +1.0 percent or -0.5 percent of the design target in standard spec table 460-2, the department will adjust pay for that lot as follows:

| Percent Lot Density Above Minimum | Pay Adjustment Per Ton |
|---|---|
| From -0.4 to 1.0 inclusive | $0 |
| From 1.1 to 1.8 inclusive | $0.40 |
| More than 1.8 | $0.80 |

(3) The department will adjust pay under the Incentive Density HMA Pavement bid item. Adjustment under this item is not limited, either up or down, to the bid amount shown on the schedule of items.

(4) If a traffic lane meets the requirements for disincentive, the department will not pay incentive on the integrally paved shoulder.

(5) Submit density results to the department electronically using the MRS software. The department will validate all contractor data before determining pay adjustments.

460-020 (20100709)

## 79. Asphaltic Surface Temporary.

*Replace standard spec 465.2 (1) with the following:*

Under the Asphaltic Surface Temporary bid item; submit a mix design. Furnish asphaltic mixture meeting the requirements specified for E-10 under standard spec 460.2; except the engineer will not require the contractor to conform to the quality management program specified under 460.2.8.

SEF Rev. 14_1211

## 80. Backfill Slurry.

This special provision describes furnishing and placing backfill slurry for, but not limited to, removing and abandoning utility pipes and structures, installation of storm sewer, sanitary sewer and water pipes and structures, and exposing existing utility items as shown on the plans.

Use fine aggregate in accordance to standard spec 501.2.5.3 and number 1 coarse aggregate conforming to standard spec 501.2.5.4, and water conforming to standard spec 501.2.4 in the backfill slurry mix. Weigh aggregates at a batch plant suitable for batching concrete masonry. Mix and deliver to the project site using a truck mixer. Add enough water to enable the mixture to flow readily. Submit a mix design for the engineers review prior to placement. Backfill Slurry is considered a class III concrete mix and the department will accept the mix by certification and will follow the QMP process per standard spec 716. Mix acceptance and testing in the field is not required.

Prior to placement of backfill slurry provide for positive drainage of the area to be backfilled. Discharge from the truck in a manner to prevent segregation. Consolidation or compaction effort will not be required. Twelve hours shall elapse before paving over the backfill.

Material placed within the roadway foundation as defined in standard spec 101.3 is subject to the quality control for the zone that the material is located in and shall conform to QMP Subgrade article listed elsewhere in this special provision document. Non-conforming slurry will be replaced at no additional cost to the department.

Include backfill slurry used for, but not limited to, removing and abandoning utility pipes and structures, installation of storm sewer, sanitary sewer and water pipes and structures, and exposing existing utility items under appropriate bid items. No separate payment will be made for providing positive drainage of the area to be backfilled; for providing mix design; for furnishing, mixing, transporting and placing backfill slurry, and for QMP certification.

## 81. Concrete Masonry Structures.

### A Description

### A.1 General

Work under this item applies to cast in place concrete for structures. Conform to standard specs 501, 502, 504, 701, 710 and 715 and as modified in this special provision. Apply this special provision to all cast in place concrete placed under the following bid items:

| | |
|---|---|
| 502.0100 | Concrete Masonry Bridges |
| 502.0200 | Concrete Masonry Bridges HES |
| 502.1100 | Concrete Masonry Seal |
| 504.0100 | Concrete Masonry Culverts |
| 504.0200 | Concrete Masonry Culverts HES |
| 504.0500 | Concrete Masonry Retaining Walls |
| 504.0600 | Concrete Masonry Retaining Walls HES |
| 504.0900 | Concrete Masonry Endwalls |
| 636.0100 | Sign Supports Concrete Masonry |
| SPV.0035.4010 | Concrete Masonry Soldier Pile Footings |

### A.2 Concrete Masonry Bridges

Work under the item Concrete Masonry Bridges applies to cast in place concrete for bridge substructures, which includes abutments and piers. Cast in place concrete for bridge superstructures, which includes bridge decks, raised medians, sidewalks, and parapets, is covered under the special provision item HPC Masonry Structures.

### B Materials

### B.1 Mortar

Use mortar for the concrete surfaces as given in standard spec 502.3.7.5 or use one of the following products:

| | |
|---|---|
| Preblended, Packaged Type II Cement: | Tri-Mix by TK Products<br>Thoroseal Pearl Gray by Thoro Products |

The mortar shall contain one of the following acrylic bonding admixtures mixed and applied in accordance to manufacturer's recommendations:

| | |
|---|---|
| Acrylic Bonding Admixture: | TK-225 by TK Products<br>Achro 60 by Thoro Products<br>Achro Set by Master Builders |

**C Construction**

**C.1**

*Replace standard spec 501.3.8.2 with the following:*

The contractor is responsible for the quality of the concrete placed in hot weather. Submit a written temperature control plan at or before the pre-pour meeting. In that plan, outline the actions taken to control concrete temperature if the concrete temperature at the point of placement exceeds 80° F (27° C). Do not place concrete without the engineer's written acceptance of that temperature control plan. Perform the work as outlined in the temperature control plan.

If the concrete temperature at the point of placement exceeds 90° F (32° C), do not place concrete under the following bid items:

Concrete Masonry Bridges
Concrete Masonry Bridges HES
Concrete Masonry Retaining Walls
Concrete Masonry Retaining Walls HES
Concrete Masonry Culverts
Concrete Masonry Culverts HES
Concrete Masonry Endwalls
Sign Supports Concrete Masonry
Concrete Masonry Soldier Pile Footings

Notify the engineer whenever conditions exist that might cause the temperature at the point of placement to exceed 80º F (27º C). If project information is not available, obtain information from similar mixes placed for other nearby work.

Any additive or action taken to control the temperature of the Concrete Masonry to within the limits of this special provision, including but not limited to the addition of ice to the concrete mix, is considered incidental to the work and will not be measured or paid for separately.

**C.2**
*Add the following standard spec 501.3.11:*

**501.3.11 Slip Forming**
Do not place concrete by the slip-form method for any item covered by this special provision.

**C.3 Modified Concrete Surface Finish**
For all structures receiving concrete staining or concrete staining multi-color as set forth in the contract, apply modified surface finish by filling all air holes as the engineer directs with mortar as defined in B.1. Before applying the modified surface finish, saturate the concrete surface with water and fill all tie rod holes and large cavities, and remove or correct all fins and irregularities as specified in 502.3.7.1 and 502.3.7.2.

**D (Vacant)**

**E (Vacant)**
SEF Rev. 14_1211

## 82. Contact Grouting.

**A Description**
Contact grouting is to fill any remaining voids outside of the jacked pipe and outside of shaft excavation support system. This section covers the work necessary for contact grouting including furnishing, mixing and placing grout; furnishing all labor, materials, equipment, and incidentals; and all other related work necessary for grouting.

**B Materials**
Contact grout shall consist of a mixture of water, sand and Portland cement, with mineral fillers or admixtures as necessary to achieve a non-shrink, non-bleed, flowable grout. The grout shall have a minimum 24-hour compressive strength of 75 psi and a minimum 28-day compressive strength of 250 psi.

Portland cement, water and fly ash shall conform to the requirements of standard spec 501.2. Use Type I Portland cement.

Sand shall conform to the requirements for concrete aggregates specified in standard spec 501.2.5, except that it shall have a fineness modulus between 1.5 and 2.0 and be graded as specified in the following table:

| Sieve Size | Percent Passing Minimum |
|---|---|
| No. 8 | 100 |
| No. 16 | 95 – 100 |
| No. 30 | 60 – 85 |
| No. 50 | 20 – 50 |
| No. 100 | 10 – 30 |
| No. 200 | 0 – 5 |

Fluidifier shall be a compound with characteristics that will hold the solid constituents of the grout in colloidal suspension, be compatible with the cement and water used in the grout mix, and contain a shrinkage compensator. Fluidifier shall not contaminate the groundwater. Fluidifier shall be furnished in moisture resistant paper sacks shipped in sealed containers and shall be handled and stored so as to avoid absorption of moisture, damage or waste. Material which has become caked due to moisture absorption will be rejected.

Suitable stop valves shall be provided at the collar of the grout hole for use in maintaining pressure as required until the grout has set.

**C Construction**
**C.1 Submittals**
**C.1.1 General**
Prepare and submit contact grout mix and contact grout work plan at least 21 calendar days prior to beginning grouting activities. The engineer will accept the submittal as submitted or return the submittal with requested revisions. Do not start any grouting work until the engineer provides acceptance of contact grout mix and contact grout work plan. Acceptance of the submittals does not relieve the contractor of responsibility for successful completion of the tunnels.

**C.1.2 Submittals for Approval**
**Contact Grout Mix:**
Submit mix designs for each contact grout mix proposed for use. Resubmit as appropriate if the mixes are modified during the course of the work. Each mix design shall show the ingredients of the mix and shall include:

i. Type, brand, source, and amounts of cement, admixtures, and other additives.
ii. Source and amount of water.
iii. Representative samples of materials for materials test and mix proportion testing.
iv. Combined grading of each mix design.
v. Specific gravity of all materials.
vi. Results of required tests.

Submit material specifications and instructions for use of any proposed concrete admixtures.

Submit certificates of compliance for each load of Portland cement and fly ash (if used) which is in accordance to ASTM C618 and certificates of compliance for all admixtures. Supporting test data shall be furnished when requested by the engineer. All testing and sampling procedures shall be in accordance to ASTM C311.

Mill test reports for Portland cement.

Submit water quality test results.

**Contact Grouting Work Plan:** The work plan for placing contact grout shall cover each type of contact grouting required and shall include:

a. Contact grouting methods, procedures and sequences for each tunnel segment.
b. Grout hole locations and depth of injection ports.
c. Plans for grout port opening in advance of injection at a port and release of water disturbed soil or slurry.
d. Method of transporting grouting equipment, grout and materials into and within the tunnel.
e. Quantitative prediction of grout volumes required at each location, with consideration of volume of annular space due to difference between diameter excavated and outside diameter of initial support system or jacked pipe, ground loss volumes, soil stand-up time and diametrical closure.
f. Means for measuring grout takes (volume) per foot or segment of initial support system or pipe.
g. Means for measuring grout pressures and planned grout pressure limits for refusal criteria.
h. Timing of grout injection after completion of a drive for pipe jacking.
i. Contact Grouting Equipment: Manufacturer's specifications and operation instructions for grout conveyance equipment. Pump specifications. Grout hose, valve and port sizes and specifications. Grout pressure gages and pressure gauge calibration data.

**C.1.3 Information Submittals**

**Contact Grouting Daily Records:** Submit the following daily reports and records for jacked pipe contact grouting.

a. Daily logs of grouting operations at all contact grouting locations (station and position) of grout ports, including pressures, volumes, and grout mix pumped, times of injecting, locations where grout samples for test cylinders are taken, and grout slump results.
b. An analysis of overcut annulus volume at the time of grouting with consideration of soil stand-up time, diametrical closure and effects of injected bentonite slurry volumes. Provide a comparison of anticipated annulus volume with grout volume placed by contact grouting for each pipe.
c. Compressive strength tests reports from a certified testing laboratory.

**C.1.4 Acceptance**
The engineer will evaluate the Submittals for Approval with the requirements of this special provision. Within 14 calendar days after receipt of the Submittals for Approval, the engineer will notify the contractor of the acceptance of the submittal, or if additional information and/or changes are required. Any unacceptable part of the Submittals for Approval will require resubmission. The contractor must resubmit the Submittals for Approval for evaluation and review with the necessary changes or additional information provided. The engineer will provide a written notice of acceptance or rejection of contractor's resubmitted Submittals for Approval within 14 calendar days after its receipt.

After the engineer's acceptance of Submittals for Approval, no changes to the Submittals for Approval can be made without written consent of the engineer.

All Information Submittals should be submitted to the engineer. The engineer can reject the submittals which do not adequate detail, as required herein. The contractor shall resubmit the rejected submittals within 7 days upon the receipt of the engineer's rejection notice.

**C.2 General Grouting Requirement**
Notify the engineer at least 24 hours in advance of the start of grouting operations.

If out of visible contact, continuous telephonic communication shall be maintained between the grout plant and the injection point.

Continuously agitate grout in the mixer and holding tanks. Remove Portland cement grout from the mixer, holding tank and supply line that is not injected into the hole within 2 hours after mixing and waste it.

Maintain grout at temperatures above 50 degrees F until injected. The temperatures of mixing water shall range from 50 degrees F to 100 degrees F when added to the grout mixer. Store grout materials at temperatures above freezing. Grouted ground shall be no colder than 40 degrees F when grout is injected and for a period of five days thereafter.

Protect grout holes from becoming clogged or obstructed prior to grouting by means of a cap or other suitable device on the collar of the hole. Clean out in a satisfactory manner or replace any hole that becomes blocked or otherwise unsuitable for its intended purpose at the expense of the contractor.

Flag and protect all grout hole locations. Clearly label grout locations for easy identification.

**C.3 Contact Grout Injection**
Perform contact grouting to reduce groundwater inflow, to fill voids, to minimize ground movement into the excavation, and to provide firm and uniform contact between the support system and the ground.

Equipment and lines shall be kept clean by constant circulation of grout and periodic flushing with water. Leakage from connections shall not be permitted. Plugs on ends of nearby grout holes or pipes shall be removed to permit escape of air and water and the filling of spaces with grout.

Once started, grouting of a hole shall not be interrupted. Grouting of a hole shall not be considered complete until that hole refuses to take grout as defined under approved contact grouting work plan. After grouting of a hole or any stage of a hole has reached refusal, the pressure on the hole shall be maintained by means of a stopcock or other suitable device until the grout has set.

Grout progressively from pipe to pipe in the sequence submitted by the contractor or approved by the engineer. If necessary to relieve premature stoppage, periodic applications of water under pressure shall be considered. Grout that cannot be placed prior to initial set shall be discarded. Check operating gauges daily to determine that they are in working order. Do not grout without appropriate gauges in place and in working order.

Inject grout in continuous progression of the grout holes along the length of the tunnel or perimeter of the shaft. Where grout holes extend around the tunnel periphery, connections to higher grout holes shall not be made until the grout has completely filled the void space below as indicated by escape of grout of normal consistency from the higher holes. Exercise particular care to completely fill the voids on each side of any obstruction which interferes with the passage of grout. Vent holes for the release of air and water during grouting of crown or invert cavities shall be provided as necessary.

Where grouting in soil, the grouting pressure at the injection point shall not exceed 0.6 psi per foot of depth of soil overburden, unless otherwise proposed by the contractor, with the engineer's concurrence. In all cases, the grouting pressures shall be limited as necessary to avoid damage to the final lining.

The grouting of any hole shall not be considered complete until all voids have been filled to the maximum extent practicable. After the grouting of any hole is finished, the pressure shall be maintained by means of the stop valve until the grout has set to the extent that it will be retained in the hole.

**C.4 Contact Grouting for Shaft**

Perform contact grouting outside of initial support system where overcutting results in a 1/2-inch or wider void space between the ground and the excavation support system.

Locate grout holes as necessary to accomplish the work and to thoroughly fill the voids outside of the initial support system. Drill grout holes for contact grouting of initial supports through the initial supports and into the annular space between the initial support and surrounding ground.

Perform contact grouting at least once per day after the excavation support system has been advanced on that day.

Perform contact grouting to reduce groundwater inflow, to fill voids, to minimize ground movement into the excavation, and to provide firm and uniform contact between the support system and the ground. The contractor's ground support design engineer shall determine a refusal criteria and the maximum grout pressure that is consistent with the design of the ground support system. The engineer may periodically request that check holes be drilled to determine if unacceptable voids exist outside of the ground support system. Additional contact grouting shall be completed at no additional cost to the department where checking indicates the presence of unacceptable voids.

**C.5 Contact Grouting after Pipe Jacking**

The contractor shall commence contact grouting promptly (within 24 hours) following completion of each Tunnel drive. Once started for a tunnel drive, perform continuous contact grouting until contact grouting for the entire drive has been completed.

Grout holes for contact grouting of jacked pipe shall be pre-installed pipe nipples. New grout holes shall not be drilled through pipe walls unless specifically approved by the engineer.

Inject grout in continuous progression of the grout holes along the length of the tunnel. At any time during the grouting operations, sufficient contact grout holes ahead of the hole to be grouted shall be opened, plugs removed, holes cleaned and valves attached for controlled discharge (venting) of lubrication slurry, disturbed soil and groundwater within the overcut annulus. Keep grout port valves in a fully open position within a maximum safe grout communication distance, as determined by the contractor and accepted by the engineer in the grouting submittal. This distance may vary along the tunnel with variations in adjacent soil and groundwater conditions. Close or regulate discharge at ports opened for venting, as necessary to prevent lost ground from squeezing, a blow-in or excessive groundwater seepage. Continue venting from each opened port until grout of normal consistency (not mixed with slurry, soil or water) is discharged from the vent holes. After an acceptable grout discharge is observed at a port, close the valve until a hook-up is made at the port for injection of grout.

Attempt to hook-up and pump grout at every port unless approval is granted by the engineer to skip selected holes. In general, contact grouting at a port will be considered completed when less than one cubic foot of grout of the accepted mix and consistency can be pumped in 5 minutes under the specified maximum pressure. After the grouting is finished, the valve shall be closed until grout has set. After a valve is closed following injection, the grout header and hoses shall be moved to the next port in progression.

Volume of contact grout injected shall be measured, recorded and compared with the anticipated volume per foot of pipe grouted with compensation for grout wasted in lines and vented through ports.

At the completion of grouting, remove valves after grout has set and replace valves with screw type grout plugs.

**C.6 Cleanup**
Minimize spilling and prevent the setting of any grout that may escape upon finished pipe or structure surfaces. Remove any spilled grout and restore the pipe or structure surface to its original condition. Properly dispose of all waste materials. Remove all grouting equipment and accessories from the tunnel.

**D (Vacant)**

**E Payment**
Contact grout used to fill any remaining voids outside of the jacked pipe shall be included under pay item of Tunnel Excavation. Contact grout used to fill any remaining voids outside of shaft excavation support system shall be included under pay item of Shaft Excavation Support System.

## 83. QMP Drilled Shafts.

**A General**
Perform this work in accordance to the requirements of standard specs 501, 502, 701, 710 and 715 (conform to QMP Concrete Structures) except as deleted or additionally stipulated herein. This specification applies to all drilled shaft concrete placed under the following bid items:

| | |
|---|---|
| SPV.0090.4425 | Wall Secant Pile 47.24-Inch |
| SPV.0090.4430 | Drilled Foundation Shaft 59.06-Inch |
| SPV.0090.4435 | Drilled Foundation Shaft 98.43-Inch |
| SPV.0090.4440 | Drilled Foundation Shaft 118.11-Inch |

**B Materials**
**B.1 Concrete Mix Physical Requirements**
For drilled shaft construction, use high compressive strength concrete, and relatively high cement content in the concrete mix with 590 to 675 pounds of cement per cubic yard. Additives or admixtures, when they are used, shall be clearly indicated. The concrete shall be a flowable, non-segregating concrete mix that does not exhibit rapid slump loss.

Unit Weight of Concrete, AASHTO T 121: Weight must be between 140 to 160 lb/ft$^3$.

Fine and course aggregate shall conform to the requirements of standard spec 501.2.5 except as modified herein.

Fine aggregate shall conform to the following gradation requirements:

| Sieve Size | Percent Passing (by weight) |
|---|---|
| 3/8” | 100 |
| No. 4 | 90 – 100 |
| No. 16 | 45 – 85 |
| No. 50 | 5 – 30 |
| No. 100 | 0 – 10 |
| No. 200 | 0 – 3.5 |

Coarse aggregates shall conform to the following gradation requirements:

| Sieve Size | Percent Passing (by weight) |
|---|---|
| 1/2” | 100 |
| 3/8” | 85 – 100 |
| No. 4 | 10 – 30 |
| No. 8 | 0 – 10 |
| No. 16 | 0 – 5 |
| No. 200 | 0 – 1.5 |

Any chemical admixture(s) to be used, other than air-entraining agents or water reducers from the department approved list, must be approved in advance by the engineer and meet the requirements of AASHTO M 194, as documented by independent laboratory test reports.

The adjustment of dosage rates of concrete admixtures will be permitted without requiring a new mix design.

**B.2 Slump**

The trial mix design for drilled shaft concrete shall include a Slump Loss Graph, or Slump versus Time after Batching. The Slump Loss Graph of a proposed drilled shaft mix design shall illustrate the slump reducing slowly and still exceeding a 5-inch slump two hours after batching. Careful attention to concrete mix designs made with retarders must be exercised. Monitor slump to assure that all concrete placement is completed before any mix begins setting. Operations may need to be adjusted to reduce the number of shafts that are completed during a single pour event.

Adding water to a ready-mix truck is prohibited. In cases in which part of the water of the concrete mix is added at the batch plant and the remaining water is added at the job site, the amount of water to be added at the job site shall be stated on the mix design sheet carried by the ready-mix truck driver. Testing of concrete will then be conducted on the resulting mix, and further water cannot be added at any time to increase the mix slump or to bring the mix to a specific slump. If after all the water permitted in the mix design has been added and the slump is still out of these specifications, the contractor must reject the

mix. Repair or replace drilled shafts of questionable concrete design mixes at no additional cost to the department.

The following table presents the ranges for the slump.

| | Slump Range in Inches | | |
|---|---|---|---|
| | Concrete Placed by Free Falling | Concrete Placed by Tremie | Concrete Placed by Pump |
| **Dry Installation Method** | | | |
| Uncased or Cased Excavations | 7 to 9 | 8 to 9½ | 7 to 9½ |
| **Wet Installation Method** | | | |
| Uncased or Cased Excavations | N/A | 8 to 9½ | 7 to 9½ |

**B.3 Slurry**

**B.3.1 General**

Slurry shall be a stable suspension of mineral in potable water or polymer slurry. Maintain a stable suspension at all times. Bentonite slurry shall be mineral slurry of powdered Wyoming or Dakota bentonite, with density, viscosity, and pH as specified in the table below:

| Property at 68°F Units | At the Time of Slurry Introduction into the Drilled Shaft | Before Concrete Placement in the Drilled Shaft | Test Method |
|---|---|---|---|
| Density in Fresh Water ($lb/ft^3$) (a) | 64 to 69 | 64 to 75 | Density Balance |
| Viscosity (seconds per quart) | 28 to 45 | 28 to 45 | Marsh Funnel |
| pH | 7 to 11 | 7 to 11 | pH paper or meter |
| Sand Content (%) (b) | 4 maximum | 10 maximum | 200 Sieve Retain |

(a) At time of concreting, sand content shall not exceed 10 percent (by volume) at any point in the drilled shaft excavation; test for sand content as determined by the American Petroleum Institute.

(b) Bentonite slurry shall be disposed of offsite in an approved manner as accepted by the WDNR.

The contractor may adjust the range of slurry properties when field trials and field tests show that modifications are necessary to bring the slurry to specifications.

Polymer slurry shall be a suspension of powdered polyacrylamide or vinyl polymer with the following characteristics:

| Property at 68°F Units | At the Time of Slurry Introduction into the Drilled Shaft | Before Concrete Placement in the Drilled Shaft | Test Method |
|---|---|---|---|
| Density in Fresh Water ($lb/ft^3$) (a) | 63 or less | 63 or less | Density Balance |
| Viscosity (seconds per quart) | 50 minimum | 50 minimum | Marsh Funnel |
| pH | 8 to 11 | 8 to 11 | pH paper or meter |
| Sand Content (%) | 2 maximum | 10 maximum | 200 Sieve Retain |

(a) At time of concreting, sand content shall not exceed 10 percent (by volume) at any point in the drilled shaft excavation; test for sand content as determined by the American Petroleum Institute.

Obtain slurry samples from the midpoint and bottom of each drilled shaft prior to the placement of the reinforcing steel. Correct the slurry as necessary to meet the specification requirements.

**B.3.2 Tests**
To ensure that the results are within the ranges stated in the table above, perform the following tests on the mineral slurry supplied to the drilled shaft excavation at different depths within the drilled shaft using a slurry sampler.

**B.3.2.1 Wisconsin Method of Test for Density of Slurry (Mud Weight)**
Density shall be measured at 68°F. This test is identical to ASTM D 4380 except that the mineral slurry to be tested shall consist of processed attapulgite or bentonite clays, and the temperature of the slurry (using a 0-105°C thermometer) shall be measured and recorded on the drilling Mud Report form.

**B.3.2.2 Wisconsin Method of Test for Viscosity of Slurry**
The viscosity shall be measured at 68°F or a constant temperature with the Marsh Cone Method.

**B.3.2.2.1 Scope**
The Marsh Funnel or Marsh Cone is used to measure viscosity of drilling fluids. This test method has been adapted from Section 2 of the American Petroleum Institute (API) Recommended Practice FM8-RP13B-1: Standard Procedure for Field Testing Water-Based Drilling Fluids (FM 8-RP13B-1). Use of a direct-reading viscometer has been eliminated.

**B.3.2.2.2 Equipment**

Marsh Funnel: A Marsh Funnel is calibrated to out-flow 946 mL (one quart) of fresh water at a temperature of 21 ±3°C (70 ±5°F) in 26 ±0.5 seconds. A graduated cup is used as a receiver.

Specifications:

| | |
|---|---|
| Funnel Cone Length | 305 mm (12.0 in.) |
| Diameter | 152 mm (6.0 in.) |
| Capacity to bottom of screen | 1500 mL |
| Orifice Length | 50.8 mm (2.0 in.) |
| Inside Diameter | 4.7mm (3/16 in.) |
| Screen | 12 mesh |

Has 1.6 mm (1/16 in.) openings and is fixed at a level 19.0 mm (3/4 in.)

**B.3.2.3 Wisconsin Method of Test for Sand Content of Slurry**

**B.3.2.3.1 Scope**

The sand content of mud is the volume percent of particles larger than 74 microns. It is measured by a sand-screen set. This test method has been adapted from Section 5 of the American Petroleum Institute (API) Recommended Practice 13B-1: standard Procedure for Field Testing Water-Based Drilling Fluids (RP13B-1).

**B.3.2.3.2 Equipment**

200-mesh sieve, 63.5 mm (2.5 in.) in diameter.
Funnel to fit sieve.
Glass measuring tube marked for the volume of mud to be added. The tube is graduated from 0 to 20 percent in order to read directly the percentage of sand.

**B.3.2.3.3 Procedure**

Fill the glass measuring tube with mud to the "mud" mark. Add water to the next mark. Close the mouth of the tube and shake vigorously. Pour the mixture onto the clean, wet screen. Discard the liquid passing though the screen. Add more water to the tube, shake, and again pour onto the screen. Repeat until the tube is clean. Wash the sand retained on the screen to free it of any remaining mud.

Put the funnel upside down over the top of the sieve invert. Slowly tip the assembly and insert the tip of the funnel into the mouth of the glass tube. Wash the sand into the tube by playing a fine spray of water through the screen. Allow the sand to settle. From the graduations on the tube, read the volume percent of the sand.

Report the sand content of the mud by percent volume. Report the source of the mud sample, i.e. above shaker, suction pit, etc. Coarse solids other than sand will be retained on the screen (e.g., lost circulation material) and the presence of such solids should be noted.

**B.3.2.4 Wisconsin Method of Test for pH of Slurry**

pH shall be measured by the Electric pH meter or pH indicator paper strips.

**B.3.2.4.1 Scope**

Field measurement of drilling fluid (or filtrate) pH and adjustments to the pH are fundamental to drilling fluid control. This test method has been adapted from Section 7 of the American Petroleum Institute (API) Recommended Practice 13B-1: Standard Procedure for Field Testing Water-Based Drilling Fluids (RP 13B-1).

The recommended method for pH measurement of drilling fluid is with a glass electrode pH meter. This method is accurate and gives reliable pH values, being free of interference if a high quality electrode system is used with a properly designed instrument. Rugged pH instruments are available that automatically temperature compensate the slope and are preferred over the manually adjusted instruments.

NOTE: Color matching pH paper and sticks are used for field pH measurements, but are not the methods recommended. These methods are reliable only in very simple water muds. Mud solids, dissolved salts and chemicals, and dark-colored liquids cause serious errors in pH paper values. Readability is normally about 0.5 pH unit.

**B.3.2.4.2 Equipment**

pH meter: millivolt range potentiometer calibrated to show pH units for measuring the potential between a glass-membrane electrode and a standard "reference" electrode. The instrument is (preferred) to be water, shock, and corrosion-resistant and portable. Specifications are:

- pH range: 0 to 14.
- Electronics type: solid state (preferred).
- Power source: batteries (preferred).
- Operating temperature range: 0-66°C (32-150°F).
- Readout: digital (preferred).
- Resolution: 0.1 pH unit.
- Accuracy: ±0.1 pH unit.
- Repeatability: 0.1 pH unit.
- Adjustments.
- "Temperature" compensation of electrode system.
- "Slope" of electrode system (preferred).
- "Calibration" setting of readout. (Instrument with the above internal temperature compensation is preferred.)

Electrode system: A combination system of a glass electrode for sensing $H^+$ ions and a standard voltage reference electrode, constructed as a single electrode (preferred). Body of this probe should be constructed of durable material. A flat-end probe is preferred for better protection and easier cleaning of the electrode. Waterproof connection to the meter is recommended. Specifications are:

- Glass pH electrode response range: 0 to 14 pH unit.
- Electrodes: a glass electrode and a silver/silver chloride electrode in combination, having a ceramic or a plastic single or double junction.
- Electrolyte in reference electrode: KCl gel.

- Glass composition: suitable for low sodium ion error.
- Sodium ion error: at pH = 13 or at 0.1 mole $Na^+$ ion, an error less than 0.1 pH unit.
- Buffer solutions: three solutions to calibrate and set slope of pH meter prior to sample measurement.
- pH = 4.0: potassium hydrogen phthalate at 0.05 molar in water. Gives 4.01 pH at 24°C (75°F).
- pH = 7.0: potassium dihydrogen phosphate at 0.02066 molar and disodium hydrogen phosphate at 0.02934 molar in water. Gives 7.00 pH at 24°C (75°F).
- pH = 10.0: sodium carbonate at 0.025 molar and sodium bicarbonate at 0.025 molar in water. Gives 10.01 pH at 24°C (75°F).

NOTE: Buffers may be obtained from supply houses as pre-made solution, dry-powder packages, or a given formula, but must duplicate National Bureau of Standards primary or secondary buffers. Shelf life of all buffers not to exceed six months. Date of preparation of buffer should be shown on bottles used in the field. Bottles should be kept tightly stoppered.

Distilled or deionized water: in spray bottle.
Soft tissues: to blot electrodes.
Thermometer: glass, 0-150°C (32-220°F).

Accessory equipment: Soft-bristle test tube brush: to clean electrode.
Mild liquid detergent: Ivory, or equivalent.
Electrode storage vial: to keep electrode moist.
Sodium hydroxide: 0.1 molar (approximately); to recondition electrode.
Hydrochloric acid: 0.1 molar (approximately); to recondition electrode.
Ammonium bifluoride: 10% solution (approximately); to recondition electrode.
CAUTION: This is a strong and toxic acid.
Hydrofluoric acid: ACS reagent grade.
CAUTION: This is a strong acid.

**B.3.2.4.3 Procedure – pH Measurement**
Obtain sample of fluid to be tested. Allow it to reach 24±3°C (75±5°F). Allow buffer solution to also reach the same temperature as the fluid to be tested.

NOTE: For accurate pH measurement; the test fluid, buffer solution, and reference electrode must all be at the sample temperature. The pH of the buffer solution indicated on the container label is the correct pH only at 24°C (75°F). If attempting to calibrate at another temperature, the actual pH of the buffer at this temperature must be used. Tables of buffer pH values at various temperatures are available from the suppliers and should be used in the calibration procedure.

Clean electrodes by washing with distilled water and blot dry. Place probe into pH 7.0 buffer.

Turn on meter; wait 60 seconds for reading to stabilize. Measure temperature of pH 7 buffer solution. Set this temperature on “temperature” knob. Set meter reading to “7.0” using “calibration” knob. Rinse probe with distilled water and blot dry.

Repeat operations using either pH 4.0 or pH 10.0 buffer. Use pH 4.0 if “acidic” sample, or pH 10.0 if “alkaline” sample is to be tested. Set meter to number “4.0” or “10.0” respectively, using “slope” adjustment knob. (If no “slope” knob exists, use the “temperature” knob to set “4.0” or “10.0” on meter). Check the meter with pH 7 buffer again. If it has changed, reset to “7.0” with “calibration” knob. Repeat procedures to ensure equipment is properly calibrated.

NOTE: Discard and do not reuse the sample of buffer solutions used in calibration. Meter should be fully calibrated every day using two buffers. Check with pH 7 buffer every three hours. If meter calibrates properly, rinse electrode with distilled water and blot dry. Place electrode in sample to be tested and stir gently. Allow 60 to 90 seconds for reading to stabilize.

Record sample pH to nearest 0.1 pH unit and the temperature of sample tested. Carefully clean the electrode in preparation for next usage. Store in vial of pH 4 buffer. NEVER let the probe tip become dry. Turn meter off and close cover to protect instrument. Avoid storing instrument at extreme temperatures (below 0°C (32°F) or above 49°C (120°F)).

Care of Electrode: Cleaning the electrode will be necessary periodically, especially if oil or clay particles coat the face of the glass electrode or the porous frit of the reference electrode. Clean electrode with a soft-bristle brush and a mild detergent. Reconditioning the electrode may be necessary if plugging becomes sever, as indicated by slow response, drifting of readings, or if “slope” and “calibration” cannot be mutually set. Recondition by soaking electrode for 10 minutes in 0.l M HCl followed by rinsing in water and soaking for 10 minutes in 0.1 M NaOH and rinsing again. Check electrode for response by performing calibration. If electrode continues to perform poorly, soak electrode for two minutes only in 10% $NH_4F \cdot HF$ solution. (CAUTION: This is strong and toxic acid). Replace electrode system if above steps fail to recondition it.

**C (Vacant)**

**D (Vacant)**

**E Payment**

**E.1 QMP Drilled Shafts**

Costs for all sampling, testing, and documentation required under this special provision and all other associated work are incidental to the work. If the contractor fails to perform the work required under this special provision, the department will reduce the contractor's pay.

## 84. Concrete Curing Materials.

*Supplement standard spec 501.2.9 with the following:*

The liquid curing compound shall have a color equal to or lighter than Gardner Color Standard No. 2 when tested in accordance to ASTM C 1315 8.7.6 Yellowing Resistance.

## 85. Hydrophilic Waterstop.

**A Description**
This work consists of furnishing and installing hydrophilic waterstops (expanding waterstops in the presence of moisture) in cast-in-place concrete construction as shown on the plans, and as hereinafter provided.

**B Materials**
**B.1 Hydrophilic Waterstop**
For hydrophilic waterstop furnish one of the following:

- Adeka Ultra Seal KM 3030M by Adeka Corp.
- Adcor ES by Grace & Co.
- Hydrotite CJ-1020-2K by Greenstreak
- Or approved equal.

Furnish required or recommended primer adhesive and / or adhesive caulk specifically intended for securing and splicing hydrophilic waterstops from the same manufacturer of the hydrophilic waterstop supplied.

At least 10-days prior to the placement of hydrophilic waterstop, submit product data to the engineer including material safety data sheets and manufacturer specified placement and splicing instructions.

**B.2 Manufacturer Certification**
The manufacturer of the selected hydrophilic waterstop supplied shall provide written certification that the selected hydrophilic waterstop provided is suitable for the intended purpose and application to create watertight cast-in-place construction joints in the cut-and-cover tunnel structures as shown in the plans.

**C Construction**
Place hydrophilic waterstops between concrete placements at locations shown on the plans. Do not locate hydrophilic waterstops to alternate or revised positions from what is shown on the plans without engineer approval. Clean and prepare concrete surfaces according to hydrophilic waterstop manufacturer requirements. Secure to concrete using manufacturer approved concrete primer adhesive or adhesive caulk. Splice hydrophilic waterstops per manufacture recommended details using manufacturer approved concrete primer adhesive or adhesive caulk.

**D Measurement**
The department will not measure hydrophilic waterstop separately for payment.

**E Payment**
Payment for furnishing and installing hydrophilic waterstop as hereinbefore specified is included in the contract unit bid price and contract plan quantity for the item Concrete Masonry Bridges and will not be paid for separately.

## 86. Bar Steel Reinforcement HS Stainless Structures, Item 505.0800.S.

**A Description**
This special provision describes furnishing and placing stainless steel reinforcing bars and associated stainless steel bar couplers.

Conform to standard spec 505 as modified in this special provision.

**B Materials**
**B.1 General**
Furnish stainless steel reinforcing bars conforming to ASTM A955 and to one of the following Unified Numbering System (UNS) designations: S31653, S31803, S32205, or S32304. Supply grade 60 bars, all of the same UNS designation. Conform to the chemical composition specified for the given UNS designation in ASTM A276 table 1.

Supply bars that are free of dirt, mill scale, oil, and debris by pickling to a bright or uniform light finish. The department may reject bars displaying rust/oxidation, questionable blemishes, or lack of a bright or uniform pickled surface.

Furnish chairs or continuous supports made of stainless steel or recycled plastic to support high-strength stainless bar steel reinforcement subject to the plastic chair restriction stated in standard spec 505.3.4(1).

Furnish couplers made from one of the UNS alloys allowed for bar steel.

Furnish tie wire made from one of the UNS alloys allowed for bar steel or from an engineer-approved plastic or nonmetallic material. Ensure that stainless steel tie wire is dead soft annealed.

**B.2 Fabrication**
Before fabrication, supply test results from an independent testing agency certifying that the reinforcement meets the requirements of Annex A1 of ASTM A955.

Bend bars conforming to standard spec 505.3.2 and according to ASTM A955. Bend and cut bars using equipment thoroughly cleaned or otherwise modified to prevent contamination from carbon steel or other contaminants. Use tools dedicated solely to working with stainless steel.

### B.3 Control of Material

Identify reinforcement bars delivered to the project site with tags bearing the identification symbols used in the plans. Include the UNS designation, heat treat condition, heat number, grade corresponding to minimum yield strength level, and sufficient documentation to track each bar bundle to a mill test report.

Provide samples for department testing and acceptance according to CMM 8-50 Exhibit 1 requirements for concrete masonry reinforcement for uncoated bar steel.

Provide mill test reports for the project that do the following:

1. Verify that sampling and testing procedures and test results conform to ASTM A955, ASTM A276 table 1, and these contract requirements.
2. Include a chemical analysis with the UNS designation, heat lot identification, and the source of the metal.
3. Include tensile strength, yield strength, and elongation tests results conforming to ASTM A955 for each size furnished.
4. Certify that the bars have been pickled to a bright or uniform light finish.

## C Construction

### C.1 General

Ship, handle, store, and place the stainless steel reinforcing as follows:

1. Separate from regular reinforcement during shipping. Pad points of contact with steel chains or banding, or secure with non-metallic straps.
2. Store on wooden cribbing separated from regular reinforcement. Cover with tarpaulins if stored outside.
3. Handle with non-metallic slings.
4. Do not flame cut or weld. Protect from contamination when cutting, grinding, or welding other steel products above or near the stainless steel during construction.
5. Place on plastic or stainless steel bar chairs. If placing stainless steel chairs on steel beams, use chairs with plastic-coated feet.
6. Tie with stainless steel wire or an engineer-approved plastic or nonmetallic material.

Do not tie stainless steel reinforcing bars to, or allow contact with, uncoated reinforcing bars or galvanized steel. Maintain at least 1-inch clearance between stainless steel bars or dowels and uncoated or galvanized steel. Where 1-inch clearance is not possible, sleeve bars with a continuous polyethylene or nylon tube at least 1/8-inch thick extending at least 1 inch in each direction and bind with nylon or polypropylene cable ties. Sleeves are not required between stainless steel bars and shear studs. Stainless steel bars can be in direct contact with undamaged epoxy-coated bars.

Cut flush with the top flange or remove uncoated fasteners, anchors, lifting loops, or other protrusions into a bridge deck before casting the deck on prestressed concrete beams.

**C.2 Splices**
Splice as the plans show. The contractor may substitute stainless steel couplers for lap slices the plans show if the engineer approves in writing. If substituting stainless bar couplers for lap splices, provide stainless steel couplers conforming to the minimum capacity, certification, proof testing, and written approval requirements of standard spec 550.3.3.4.

If increasing or altering the number or type of bar splices the plans show, provide revised plan sheets to the engineer showing the reinforcement layout, type, length, and location of revised bar splices and revised bar lengths. Obtain engineer approval for the location of new lap splices or substitution of mechanical bar couplers before fabrication. Ensure that new lap splices are at least as long as those the plans show.

**D Measurement**
The department will measure Bar Steel Reinforcement HS Stainless Structures by the pound acceptably completed, computed from the nominal weights of corresponding sizes for carbon steel deformed bars in AASHTO M31 regardless of stainless steel alloy provided. The department will not measure extra material used if the contractor alters the reinforcement layout as allowed under C.2, extra material for splices or couplers the plans do not show, or the weight of devices used to support or fasten the steel in position.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 505.0800.S | Bar Steel Reinforcement HS Stainless Structures | LB |

Payment for Bar Steel Reinforcement HS Stainless Structures is full compensation for furnishing and placing stainless steel reinforcing bars, including supports. Where the plans specify bar couplers, the department will pay for the length of bars as detailed with no deduction or increase for installation of the coupler.

## 87. Steel Bridge Construction Plan.

**A Description**
**A.1. General**
This special provision descries the requirements for a Steel Bridge Construction Plan required to be to be prepared and submitted for each steel bridge structure on the project.

**A.2 Structures**
Submit a Steel Bridge Construction plan conforming to the requirements of this special provision for the following structures:

B-40-786
B-40-787
B-40-861
B-40-853
B-40-854
B-40-856

Submit the Steel Bridge Construction Plan, signed and sealed by a professional engineer registered in the State of Wisconsin, at least 14 days before structural steel transport, delivery and erection or as otherwise agreed to by the engineer.

**A.3 Standard Specifications**
The requirements herein supplement and are in addition to, all applicable requirements in the standard specifications.

**A.4 Fabrication Shop Drawings**
The contractor's steel bridge construction plan is in addition to, and not in lieu of, fabrication shop drawings. Submit fabrication shop drawings per standard spec 506. Provide additional information on fabrication shop drawings, if required, as hereinafter specified.

**B (Vacant)**

**C Steel Bridge Construction Plan**
**C.1 General**
The contractor's submitted steel bridge construction plan which provides details of fabrication, details of transportation and shipment, details of steel bridge erection, and details of concrete deck placement on steel bridge girders, shall be referred to hereinafter as the contractor's construction plan. This plan may be based on, in whole or in part, on any construction plan details shown in the contract documents or may be developed entirely by the contractor. In either event, it shall demonstrate the stability of the structure and individual components during each stage of construction, including while supported on temporary supports or jacks. Construction plan details shown in the contract documents shall not be taken as supplanting or implying any supplantation of the contractor's responsibility for the fabrication, transportation, erection, or construction of any part of the bridge.

The contractor's construction plan shall include:

- Fabrication procedures, including camber values and method of cambering and curving horizontally curved girders. Fabrication procedures may be included and shown on the submitted fabrication shop drawings. If included in the submitted fabrication shop drawings, this should be noted in the submitted construction plan.

- A transportation plan including shipping weights, lengths, widths and heights of fabricated components and subassemblies and means of shipping.

- An erection plan, including details of storage and handling at the site; sequence of erection; crane placement and capacities; and the location, capacity, elevation, design and construction details of any temporary falsework supports.

- Deck placement details including design and construction details of deck formwork and cantilever brackets; concrete placement sequence, including the time between placements; and the magnitude and position of any temporary load required to prevent girder lift-off at bearings.

**C.2 Transportation Plan**

Provide a transportation plan as part of the submitted construction plan. The transportation plan shall show the type of girder supports required and their locations identified. The types, size, and locations of tie-downs shall be shown. A sufficient number of tie-downs shall be specified to provide adequate redundancy.

Girder stresses due to self weight while being shipped shall be computed with a dynamic load allowance of 100 percent. The computed girder stresses shall satisfy the provision of Article 6.10.3.2 or 6.11.3.2 of the *AASHTO LRFD Bridge Design Specifications*, as applicable. Include these computations in the transportation plan.

Fatigue stresses shall not exceed the constant-amplitude fatigue threshold for the appropriate categories in table 6.6.1.2.5-3 of the *AASHTO LRFD Bridge Design Specifications*.

Wherever practical, submit design computations detailing the determination of the required vertical and lateral support loads during steel girder erection.hip girders in the same orientation as in the completed structure. Support girders in such a manner that their cross-section shape is maintained and through-thickness stresses are minimized.

Provide supports as required during transportation to ensure that dynamic lateral bending stressed are minimized.

Temporary stiffening trusses or beams, if required to meet the requirements of this section shall be specified and detailed in the transportation plan.

**C.3 Erection Plan**

**C.3.1.General**

An erection plan shall be included as part of the submitted construction plan. Submit drawings illustrating fully the proposed method of erection. The drawings shall show details of all falsework bents, bracing, guys, dead-men, lifting devices, and attachments to the bridge members; sequence of erection, location of cranes, crane capacities, location of lifting points on the bridge members, and weights of the members. The drawings shall be complete in detail for all anticipated phases and conditions during erection. Calculations

are required to demonstrate that factored resistances are not exceeded and that member capacities and final geometry will be correct.

The submitted erection plan shall consider and ensure the stability girders and the cross-section shape of box girders are maintained throughout the erection process. The stage of completeness of bolted connections shall be considered when evaluating the strength and stability of the steel during erection.

The erection procedure shall conform to the submitted erection plan. Any modifications to or deviation from the submitted erection plan, shall required revised drawings and verification of stressed and geometry.

**C.3.2 Camber Diagram**

Include camber diagrams in the erection plan or submitted fabrication shop drawings showing the camber at location of field splices and fractions of span length (quarter points minimum).

Cambers shown in the contract drawings are based on the assumption that the deck concrete is placed uniformly and simultaneously on the whole bridge or unit. The contractor is required to investigate the geometric response of the bridge based on the proposed deck placement sequence. In calculating and evaluating cambers consider vertical, lateral, and twist deflections due to dead load. Carefully consider the sequence of load application and incremental curing of the deck concrete during staged placement of the deck on continuous span bridges. Address time dependant effects, including creep, shrinkage and load shedding effects were appropriate. If the contractor's engineer deems these effects to be insignificant, include a statement to this effect in the contractor's submitted Steel Bridge Construction Plan.

Adhere to cambers provided on the contract documents unless the steel erection or deck placement is to be performed in such a manner that will lead to deflections different from those used to determine the camber specified. If the contractor or the contractor's fabricator / detailer or erector intends other procedures or outcomes, the approach shall be confirmed with the engineer, prior to beginning fabrication. Provide any additional documentation or submissions required by the engineer at no additional cost to the department.

**C.3.3 Erection Falsework**

Design falsework in accordance to Section 3, "Temporary Works," of the *AASHTO LRFD Bridge Construction Specifications* to carry the vertical and lateral loads specified in the submitted erection plan. Set the elevation of falsework as necessary to support the girders at the cambered no-load elevation. If used in conjunction with the falsework, use jacks that have a stroke adequate to permit full unloading. Provide means of unloading of temporary supports in a manner that all temporary supports at each cross-section are unloaded uniformly.

Submit design computations detailing the determination of the required vertical and lateral support loads during steel girder erection. Submit structural design computations for all falsework to the required capacity and construction details of all required falsework including falsework foundation support. The falsework calculations and construction detail drawings shall be signed and sealed by a professional engineer registered in the State of Wisconsin.

**C.3.4 Handling and Storing Materials**

Indicate means of methods of structural steel material handling and storage on site in the submitted erection plan. Materials to be stored at the job site shall be placed on skids above the ground. The storage area shall be kept clean and properly drained. Place girders and beams in upright positions held in place with adequate shoring and bracing. Long members shall be supported on skids placed near enough together to prevent injury and deformation from deflection.

**C.3.5 Erection Stresses**

Factored stresses due to self weight of the steel and wind at each stage of erection shall not exceed those computed according to the provisions of the *AASHTO LRFD Bridge Design Specifications* and as hereinafter specified. Provide computations which show that the factored constructions stresses satisfy the requirements of the Articles 6.10.3 and 6.11.3 "Constructability," of the *AASHTO LRFD Bridge Design Specifications*, as applicable.

Any erection stresses induced in the structure as a result of using a method of erection which differs from the assumptions given in the contract documents shall be accounted for by the contractor. Erection design calculations for such changed methods shall be prepared at the contractor's expense and submitted to the engineer as part of the submitted erection plan. The calculations shall indicate any change in stresses or change in behavior for the temporary and final structures. Additional material required to keep both the temporary and final stresses within the allowable limits used in design shall be provided at the contractor's expense.

The contractor is responsible for providing temporary bracing or stiffening devices to accommodate handling stresses in individual members or segments of the structure during erection.

**C.3.6 Maintaining Alignment and Camber**

During erection, the contractor is responsible for supporting segments of the structure in a manner that will produce the proper alignment and camber in the completed structure. Install cross frames and diagonal bracing as necessary during the erection process to provide stability and assure correct geometry. Temporary bracing if necessary at any stage of erection, shall be provided by the contractor.

**C.4 Concrete Deck Placement Plan**

**C.4.1 General**

Submit a Concrete Deck Placement Plan indicating the sequence and methods of deck placement on the erected structural steel. Concrete placements shall be made in the

sequence specified in the submitted steel bridge construction plan. The time between placements shall be such that the concrete in prior placement has reached an age or strength specified in the submitted concrete deck placement plan. Identify any admixture agents to be used in the deck concrete mix in the concrete deck placement plan. If used, admixtures must be permitted by and conform to the requirements of the standard specifications. The planned duration of each placement shall be specified in the construction plan.

**C.4.2 Concrete Deck Formwork**

Include details of cast-in-place deck formwork including overhang brackets and forms in the submitted concrete deck placement plan. Deck formwork shall conform to the requirements of the plans and standard specifications.

Attach overhang brackets to the top flange. If noted on the plans, overhang brackets must bear near the bottom flange within the limits noted on the plans. If the overhang brackets bear against the web, the contractor's engineer must ensure that precautions have been taken to prevent the permanent deformation of the web and excessive deflection of the wet slab and forms. Investigate the lateral force on the top flange due to overhang brackets to ensure that the flange is adequate as specified in Article 6.10.3.4 "Deck Placement" of the *AASHTO LRFD Bridge Design Specifications*.

Loads applied on the overhang brackets shall be considered in determining lateral flange bending stresses cross-frame forces, and associated web and top flange deformations. If the loads or their application are to be different than those provided in the contract documents, an additional analysis shall be made and supporting calculations submitted as part of the erection plan.

**C.5 Plan Conformance**

Perform all steel bridge fabrication, transportation, erection and concrete deck placement according to the submitted steel bridge construction plan. Submit a revised construction plan including revised drawings and re-verification of stresses and geometry prior to implementing any modifications to or deviations from the submitted steel erection plan.

**D Measurement**

The department will not measure Steel Bridge Construction Plan separately for payment.

**E Payment**

The department will not pay for Steel Bridge Construction Plan under a separate bid item. Include the cost of preparing and submitting the Steel Bridge Construction Plan which includes additional requirements for steel fabrication shop drawings, a steel bridge transportation plan, a steel bridge erection plan, and a cast-in-place deck placement plan, all supporting drawings, design calculations and other specified documentation and conformance with the submitted plans in the bid item Structural Steel HS.

## 88. Railing Pipe B-40-585, Item 513.2000.0001; R-40-467, Item 513.2000.0002; R-40-469, Item 513.2000.0003; R-40-498, Item 513.2000.0004; R-40-507, Item 513.2000.0005; R-40-509, Item 513.2000.0006; R-40-511, Item 513.2000.0007; R-40-516, Item 513.2000.0008; R-40-518, Item 513.2000.0009; R-40-522, Item 513.2000.0010; R-40-524, Item 513.2000.0011; R-40-525, Item 513.2000.0012; R-40-540, Item 513.2000.0013; R-40-545, Item 513.2000.0014; R-40-5557, Item 513.2000.0015; R-40-558, Item 513.2000.0016; R-40-559, Item 513.2000.0017; R-40-797, Item 513.2000.0018; R-40-655, Item 513.2000.0019.

### A Description

This special provision describes furnishing and installing steel pipe handrails in accordance to standard spec 513, as shown in the plans, and as hereinafter provided.

### B Materials

#### B.1 Paint for Railing Pipe

Use one of the qualified paint sources and products given below with tie primer coat specifically intended for painting of galvanized surfaces. An equivalent system may be used with the written approval of the engineer.

| Producer | Coat | Products | Dry Film Minimum Thickness (mils) | Minimum Time Between Coats (hours) |
|---|---|---|---|---|
| Sherwin Williams<br>1051 Permeter Drive,<br>Suite 710<br>Schaumburg, IL 60173<br>847.330.1562 | Tie | Recoatable Epoxy Primer B67-5 Series/B67V5 | 2.0 to 4.0 | 6 |
| | Top | Acrolon 218 HS Polyurethane , B65-650 | 2.0 to 4.0 | NA |
| Carboline<br>350 Hanley Industrial<br>St. Louis, MO 63144<br>314.644.1000 | Tie | Rustbond Penetrating Sealer FC | 1 | 36 |
| | Top | Carboline 133 LH | 4 | NA |
| Wasser Corporation<br>4118 B Place NW<br>Suite B<br>Aubum, WA 98001 | Tie | MC-Ferrox B 100 | 3.0 to 5.0 | 8 |
| | Top | MC-Luster 100 | 2.0 to 4.0 | NA |

#### B.2 Color

The finished color for coating system for railing pipe shall match Federal Color 37038 – Black

**C Construction**
*Delete paragraph 513.3.1(6) and replace with the following:*

After fabrication, blast clean railing pipe assemblies per SSPC-SP 6 and galvanize according to ASTM A 123. Steel preparation includes the chamfering of sharp edges. All sharp edges shall be flattened by a single pass of a grinder or suitable device along the sharp edge. Condition any thermal cut edges before blast cleaning by shallow grinding or other cleaning to remove any hardened surface layer. Remove all evident steel defects exposed in accordance to AASHTO M 160 prior to blast cleaning.

After galvanizing, paint all exterior surface of railing pipe as hereinafter provided. All exterior galvanizing surfaces shall be cleaned per SSPC-SP1 to remove, chlorides, sulfates zinc salts, oil, dirt, organic matter and other contaminants. The cleaned surface should then be Brush Blast Cleaned per SSPC-SP7 to create a slight angular surface profile (1.0 – 1.5 mils) for adhesion. Blasting should not fracture the galvanized finish or remove any dry film thickness.

After cleaning provide a tie primer coat from an approved coating system that is specifically intended to be used on a galvanized surface. The tie coat shall etch the galvanized rail and prepare the surface for the top coat. Apply a top coat matching the specified color. The tie and top coats should be of contrasting colors. Use a pre-approved top coat that is resistant to the effects of the sun, and is suitable for use in a marine environment. Exercise care so as not to damage the painted surface during railing installation.

**D (Vacant)**

**E Payment**
*Delete paragraph 513.5(2) and replace with the following:*

Payment for Railing Pipe is full compensation for providing, fabricating transporting, and erecting the rail; for preparation, galvanizing, cleaning and painting; for providing and placing metal shims under the bases if required; and for providing and placing the anchor bolts.

## 89. Painting Epoxy System B-40-787, Item 517.0060.0001; B-40-861, Item 517.0060.0002; R-40-468, Item 517.0060.0003; R-40-516, Item 517.0060.0004; R-40-631, Item 517.0060.0005; R-40-655, Item 517.0060.0006.

**A Description**
This special provision describes work that shall be in accordance to standard spec 517 and as hereinafter provided:

**B Materials**

**B.1 Coating System**

Furnish a complete coating system from the department's approved list. The color of epoxy shall be white and the urethane coating material shall match the color number shown on the plans in accordance to Federal Standard Number 595B, as printed in 1989. Supply the engineer with the product data sheets before any coating is applied. The product data sheets shall indicate the mixing and thinning directions, the recommended spray nozzles and pressures, the minimum drying time for shop applied coats, and the recommended procedures for coating galvanized bolts, nuts, and washers.

**C Construction**

Modify the fourth paragraph of standard spec 517.3.1.7.2 to read:

On all other areas including the outside surfaces of splice plates, the minimum dry film thickness above the surface profile for the primer coat shall be 3.0 mils (0.076 mm).
517-041 (20040820)

## 90. Painting Polysiloxane System B-40-786, Item 517.0650.S.0001; B-40-853, Item 517.0650.S.0002; B-40-854, Item 517.0650.S.0003; B-40-856, Item 517.0650.S.0004.

**A Description**

This special provision describes structural steel girder surface preparation, shop application of the two-coat polysiloxane system, and incidental field painting and repairs.

Conform to standard spec 517 as modified in this special provision.

**B Materials**

Furnish a coating system from the department's approved product list consisting of an organic zinc rich epoxy prime coat conforming to standard spec 517.2 and a finish coat of polysiloxane. Furnish polysiloxane having a resin co-reacted or blended with acrylic, epoxy, or urethane resin, or combination thereof, supplied by the primer manufacturer. Ensure that polysiloxane does not contain isocynates or polyisocynates.

For box girders, ensure that the finished coating matches the Federal Standard No. 595B color the plans show for exterior surfaces, diaphragms, and bracing and matches Federal Standard No. 595B color, white #27925, for interior surfaces, diaphragms, and bracing. The contractor may use the first two coats of the three-coat epoxy paint system conforming to standard spec 517.2.4 on the interior of box girders. If using the epoxy system, cover box girders in storage or after erection if the interior is exposed to sunlight for more than 30 days.

**C Construction**

Remove all visually evident steel defects by conditioning according to ASTM A6 before blast cleaning. When material defects exposed by blast cleaning are removed, restore the blast profile by either blast cleaning or using mechanical tools according to SSPC-SP11.

Mill or grind flame cut edges so the lines are parallel to the length of the plate edge. Grind exterior corners to a 3/32" radius.

Submit product data sheets to the engineer before coating. Ensure that product data sheets include mixing and thinning directions, recommended spray nozzles and pressures, and minimum drying times for shop or field applied coats. Also provide manufacturer recommended application temperatures; recoating procedures; and coating procedures for galvanized bolts, nuts and washers.

Except for incidental field finish work, including bolted field splices and repair of damaged areas, shop apply the coatings at the following dry film thicknesses measured according to SPCC PA 2:

Organic zinc rich epoxy primer .....4 mils min
Polysiloxane finish coat .....4 to 8 mils
Total paint system .....8 to 13 mils

Apply organic zinc rich epoxy primer conforming to standard spec 517.3, except ensure that the dry film thickness on faying surfaces of bolted field splices is not less than 2 mils or greater than 2.5 mils. Mask faying surfaces during finish coat application.

Do not apply polysiloxane if the ambient air or steel surface is below manufacturer-recommended application temperature minimums or below 39 F, whichever is higher.

On the interior of box girders, uniformly dust the wet film surface of the first interior coat on the top of the bottom flange with silica sand or other engineer-approved grit material. Blow off any loose, non-adhered sand or grit before applying the second interior coat.

For maximum time between coats of the polysiloxane system, adhere to manufacturer recommendations except as follows:

- Let no more than 60 days elapse between coats.
- The engineer will allow additional time to apply the polysiloxane finish coat in the field for incidental painting or damage repairs.

After delivery to the project site and before erecting the girders, visually inspect the girders and remove dust, dirt, road salts and other contaminants from the surfaces of the girders. Use a low-pressure water blast or other engineer-approved method to remove all visually identifiable contaminants without damaging shop-applied paint.

Take care to minimize the number and size of touch-up spots. Follow the manufacturer's recommendations for repairing damaged areas.

Protect property near the structure from over-spray during field painting and repair damaged areas conforming to standard spec 517.3.1.8. Before applying the polysiloxane field coating, clean all primed surfaces and areas to be re-coated with a light water blast

and prepare surfaces as the manufacturer recommends. Before painting, obtain engineer approval for surface cleaning and coating procedures.

**D Measurement**

The department will measure Painting Polysiloxane System as a single lump sum unit of work for each structure, acceptably completed. The engineer will accept the work based on the final field appearance.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 517.0650.S.001 | Painting Polysiloxane System B-40-786 | LS |
| 517.0650.S.002 | Painting Polysiloxane System B-40-853 | LS |
| 517.0650.S.003 | Painting Polysiloxane System B-40-854 | LS |
| 517.0650.S.004 | Painting Polysiloxane System B-40-856 | LS |

Payment is full compensation for surface preparation and painting; for incidental field painting and repairs; and for substituting epoxy for polysiloxane as allowed inside box girders.

517-043 (20140630)

**91. Concrete Staining B-40-786, Item 517.1010.S.0001; B-40-787, Item 517.1010.S.0002; B-40-788, Item 517.1010.S.0003; B-40-790, Item 517.1010.S.0004; B-40-795, Item 517.1010.S.0005; B-40-796, Item 517.1010.S.0006; B-40-797, Item 517.1010.S.0007; B-40-850, Item 517.1010.S.0008; B-40-851, Item 517.1010.S.0009; B-40-853, Item 517.1010.S.0010; B-40-854, Item 517.1010.S.0011; B-40-856, Item 517.1010.S.0012; B-40-858, Item 517.1010.S.0013; B-40-859, Item 517.1010.S.0014; B-40-860, Item 517.1010.S.0015; B-40-861, Item 517.1010.S.0016; B-40-867, Item 517.1010.S.0017; B-40-869, Item 517.1010.S.0018; B-40-870, Item 517.1010.S.0019; B-40-882, Item 517.1010.S.0021; B-40-883, Item 517.1010.S.0022; R-40-467, Item 517.1010.S.0023; R-40-468, Item 517.1010.S.0024; R-40-469, Item 517.1010.S.0025; R-40-470, Item 517.1010.S.0026; R-40-497, Item 517.1010.S.0027; R-40-498, Item 517.1010.S.0028; R-40-505, Item 517.1010.S.0029; R-40-507, Item 517.1010.S.0030; R-40-509, Item 517.1010.S.0031; R-40-511, Item 517.1010.S.0033; R-40-516, Item 517.1010.S.0034; R-40-518, Item 517.1010.S.0035; R-40-520, Item 517.1010.S.0036; R-40-522, Item 517.1010.S.0037; R-40-524, Item 517.1010.S.0038; R-40-525, Item 517.1010.S.0039; R-40-527, Item 517.1010.S.0040; R-40-529, Item 517.1010.S.0041; R-40-532, Item 517.1010.S.0042; R-40-534, Item 517.1010.S.0043; R-40-535, Item**

**517.1010.S.0044; R-40-540, Item 517.1010.S.0045; R-40-545, Item 517.1010.S.0046; R-40-547, Item 517.1010.S.0047; R-40-557, Item 517.1010.S.0048; R-40-558, Item 517.1010.S.0049; R-40-559, Item 517.1010.S.0050; S-40-11, Item 517.1010.S.0051; S-40-13, Item 517.1010.S.0052; S-40-15, Item 517.1010.S.0053; S-40-26, Item 517.1010.S.0054; S-40-29, Item 517.1010.S.0055; S-40-30, Item 517.1010.S.0056; S-40-31, Item 517.1010.S.0057; S-40-35, Item 517.1010.S.0058; S-40-40, Item 517.1010.S.0060; S-40-42, Item 517.1010.S.0062; S-40-46, Item 517.1010.S.0063; S-40-52, Item 517.1010.S.0064; S-40-74, Item 517.1010.S.0065; S-40-82, Item 517.1010.S.0067; S-40-102, Item 517.1010.S.0069; S-40-111, Item 517.1010.S.0072; S-40-114, Item 517.1010.S.0074; S-40-115, Item 517.1010.S.0075; S-40-3, Item 517.1010.S.0076; S-40-8, Item 517.1010.S.0077; S-40-10, Item 517.1010.S.0078; S-40-19, Item 517.1010.S.0079; S-40-20, Item 517.1010.S.0080; S-40-23, Item 517.1010.S.0081; S-40-33, Item 517.1010.S.0082; S-40-34, Item 517.1010.S.0083; S-40-45, Item 517.1010.S.0084; S-40-53, Item 517.1010.S.0085; S-40-55, Item 517.1010.S.0086; S-40-80, Item 517.1010.S.0087; S-40-81, Item 517.1010.S.0088; S-40-84, Item 517.1010.S.0089; S-40-86, Item 517.1010.S.0090; S-40-91, Item 517.1010.S.0091; S-40-93, Item 517.1010.S.0092; S-40-97, Item 517.1010.S.0094; S-40-98, Item 517.1010.S.0095; S-40-103, Item 517.1010.S.0096; S-40-105, Item 517.1010.S.0097; S-40-112, Item 517.1010.S.0098; S-40-138, Item 517.1010.S.0099; B-40-871, Item 517.1010.S.0103; B-40-872, Item 517.1010.S.0104; B-40-873, Item 517.1010.S.0105; B-40-874, Item 517.1010.S.0106; R-40-495, Item 517.1010.S.0107; R-40-631, Item 517.1010.S.0109; R-40-655, Item 517.1010.S.0110; S-40-782, Item 517.1010.S.0111; S-40-787, Item 517.1010.S.0112; S-67-47, Item 517.1010.S.0113.**

**A Description**

Furnish and apply a two coat concrete stain to the exposed concrete surfaces of the structure, as detailed in the plans and as hereinafter provided.

**B Materials**

**B.1 Mortar**

Use mortar for sack rubbing the concrete surfaces as given in standard spec 502.3.7.5 or use one of the following products:

| | |
|---|---|
| Preblended, Packaged Type II Cement: | Tri-Mix by TK Products |
| | Thoroseal Pearl Gray by Thoro Products |

The mortar shall contain one of the following acrylic bonding admixtures mixed and applied in accordance to manufacturer's recommendations:

| | |
|---|---|
| Acrylic Bonding Admixture: | TK-225 by TK Products |
| | Achro 60 by Thoro Products |
| | Achro Set by Master Builders |

**B.2 Concrete Stain**

Use concrete stain manufactured for use on exterior concrete surfaces, consisting of a base coat and a pigmented sealer finish coat. Use the following products, or equal as approved by the department, as part of the two coat finish system:

Tri-Sheen Concrete Surfacer, Smooth by TK Products
Tri-Sheen Acrylic by TK Products
TK-1450 Natural Look Urethane Anti-Graffiti Primers by TK Products
Safe-Cure and Seal EPX by Chem Masters
H&C Concrete Stain Solid Color Water Based by Sherwin-Williams

**C Construction**

**C.1 General**

Furnish, prepare, apply, cure, and store all materials in accordance to the product manufacturer's specifications for the type and condition of application required.

Match or exceed the stain manufacturer's minimum recommended curing time of the concrete or 28 days, whichever is greater, prior to staining.

**C.2 Preparation of Concrete Surfaces**

Provide a sack rubbed finish in accordance to standard spec 502.3.7.5, using mortar as indicated above on concrete surfaces with open voids or honeycombing.

Following the sack rubbing, clean all concrete surfaces that are to be coated to ensure that the surface is free of all laitance, dirt, dust, grease, efflorescence, and any foreign material and that the surface will accept the coating material according to product requirements. As a minimum, clean the surface using a 3000-psi water blast. Hold the nozzle of the water blaster approximately 6 inches from the concrete surface and move it continuously in a sweeping motion. Give special attention to smooth concrete surfaces to produce an acceptable surface texture. Correct any surface problems resulting from the surface preparation methods. Grit blasting of the concrete surface is not allowed.

**C.3 Staining Concrete Surfaces**

Apply the concrete stain in accordance to the manufacturer's recommendations.

Apply the concrete stain when the temperature of the concrete surface is 45º F or higher, or as given by the manufacturer.

The color of the stain shall be as given on the plan. Tint the base coat to match the finish coat; the two coats shall be compatible with each other.

Do not begin staining the structure until earthwork operations are completed to a point where this work can begin without receiving damage. Where this work is adjacent to exposed soil or pavement areas, provide temporary covering protection from overspray or splatter.

**C.4 Test Areas**
Prior to applying stain to the structure, apply the stain to sample panels measuring a minimum of 48-inches x 48-inches and constructed to demonstrate workmanship in the use of the form liner specified on the structure if applicable. Match or exceed the stain manufacturer's minimum recommended curing time of the concrete or 28 days, whichever is greater, prior to staining. Prepare the concrete surfaces of the sample panels and apply stain using the same materials and in the same manner as proposed for the structure, including staining of the joints between the stones produced by the form liner if applicable. Do not apply stain to the structure until the department approves the test panels.

**C.5 Surfaces to be Coated.**
Apply concrete stain to the surfaces in accordance to the plan.

**D Measurement**
The department will not measure Concrete Staining (Structure). The department will use pay plan quantity according to the Pay Plan Quantity article.

**E Payment**
The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 517.1010.S.0001 | Concrete Staining B-40-786 | SF |
| 517.1010.S.0002 | Concrete Staining B-40-787 | SF |
| 517.1010.S.0003 | Concrete Staining B-40-788 | SF |
| 517.1010.S.0004 | Concrete Staining B-40-790 | SF |
| 517.1010.S.0005 | Concrete Staining B-40-795 | SF |
| 517.1010.S.0006 | Concrete Staining B-40-796 | SF |
| 517.1010.S.0007 | Concrete Staining B-40-797 | SF |
| 517.1010.S.0008 | Concrete Staining B-40-850 | SF |
| 517.1010.S.0009 | Concrete Staining B-40-851 | SF |
| 517.1010.S.0010 | Concrete Staining B-40-853 | SF |
| 517.1010.S.0011 | Concrete Staining B-40-854 | SF |
| 517.1010.S.0012 | Concrete Staining B-40-856 | SF |
| 517.1010.S.0013 | Concrete Staining B-40-858 | SF |
| 517.1010.S.0014 | Concrete Staining B-40-859 | SF |
| 517.1010.S.0015 | Concrete Staining B-40-860 | SF |
| 517.1010.S.0016 | Concrete Staining B-40-861 | SF |
| 517.1010.S.0017 | Concrete Staining B-40-867 | SF |

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 517.1010.S.0018 | Concrete Staining B-40-869 | SF |
| 517.1010.S.0019 | Concrete Staining B-40-870 | SF |
| 517.1010.S.0021 | Concrete Staining B-40-882 | SF |
| 517.1010.S.0022 | Concrete Staining B-40-883 | SF |
| 517.1010.S.0023 | Concrete Staining R-40-467 | SF |
| 517.1010.S.0024 | Concrete Staining R-40-468 | SF |
| 517.1010.S.0025 | Concrete Staining R-40-469 | SF |
| 517.1010.S.0026 | Concrete Staining R-40-470 | SF |
| 517.1010.S.0027 | Concrete Staining R-40-497 | SF |
| 517.1010.S.0028 | Concrete Staining R-40-498 | SF |
| 517.1010.S.0029 | Concrete Staining R-40-505 | SF |
| 517.1010.S.0030 | Concrete Staining R-40-507 | SF |
| 517.1010.S.0031 | Concrete Staining R-40-509 | SF |
| 517.1010.S.0033 | Concrete Staining R-40-511 | SF |
| 517.1010.S.0034 | Concrete Staining R-40-516 | SF |
| 517.1010.S.0035 | Concrete Staining R-40-518 | SF |
| 517.1010.S.0036 | Concrete Staining R-40-520 | SF |
| 517.1010.S.0037 | Concrete Staining R-40-522 | SF |
| 517.1010.S.0038 | Concrete Staining R-40-524 | SF |
| 517.1010.S.0039 | Concrete Staining R-40-525 | SF |
| 517.1010.S.0040 | Concrete Staining R-40-527 | SF |
| 517.1010.S.0041 | Concrete Staining R-40-529 | SF |
| 517.1010.S.0042 | Concrete Staining R-40-532 | SF |
| 517.1010.S.0043 | Concrete Staining R-40-534 | SF |
| 517.1010.S.0044 | Concrete Staining R-40-535 | SF |
| 517.1010.S.0045 | Concrete Staining R-40-540 | SF |
| 517.1010.S.0046 | Concrete Staining R-40-545 | SF |
| 517.1010.S.0047 | Concrete Staining R-40-547 | SF |
| 517.1010.S.0048 | Concrete Staining R-40-557 | SF |
| 517.1010.S.0049 | Concrete Staining R-40-558 | SF |
| 517.1010.S.0050 | Concrete Staining R-40-559 | SF |
| 517.1010.S.0051 | Concrete Staining S-40-11 | SF |
| 517.1010.S.0052 | Concrete Staining S-40-13 | SF |
| 517.1010.S.0053 | Concrete Staining S-40-15 | SF |
| 517.1010.S.0054 | Concrete Staining S-40-26 | SF |
| 517.1010.S.0055 | Concrete Staining S-40-29 | SF |
| 517.1010.S.0056 | Concrete Staining S-40-30 | SF |
| 517.1010.S.0057 | Concrete Staining S-40-31 | SF |
| 517.1010.S.0058 | Concrete Staining S-40-35 | SF |
| 517.1010.S.0060 | Concrete Staining S-40-40 | SF |
| 517.1010.S.0062 | Concrete Staining S-40-42 | SF |
| 517.1010.S.0063 | Concrete Staining S-40-46 | SF |
| 517.1010.S.0064 | Concrete Staining S-40-52 | SF |
| 517.1010.S.0065 | Concrete Staining S-40-74 | SF |
| 517.1010.S.0067 | Concrete Staining S-40-82 | SF |

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 517.1010.S.0069 | Concrete Staining S-40-102 | SF |
| 517.1010.S.0072 | Concrete Staining S-40-111 | SF |
| 517.1010.S.0074 | Concrete Staining S-40-114 | SF |
| 517.1010.S.0075 | Concrete Staining S-40-115 | SF |
| 517.1010.S.0076 | Concrete Staining S-40-3 | SF |
| 517.1010.S.0077 | Concrete Staining S-40-8 | SF |
| 517.1010.S.0078 | Concrete Staining S-40-10 | SF |
| 517.1010.S.0079 | Concrete Staining S-40-19 | SF |
| 517.1010.S.0080 | Concrete Staining S-40-20 | SF |
| 517.1010.S.0081 | Concrete Staining S-40-23 | SF |
| 517.1010.S.0082 | Concrete Staining S-40-33 | SF |
| 517.1010.S.0083 | Concrete Staining S-40-34 | SF |
| 517.1010.S.0084 | Concrete Staining S-40-45 | SF |
| 517.1010.S.0085 | Concrete Staining S-40-53 | SF |
| 517.1010.S.0086 | Concrete Staining S-40-55 | SF |
| 517.1010.S.0087 | Concrete Staining S-40-80 | SF |
| 517.1010.S.0088 | Concrete Staining S-40-81 | SF |
| 517.1010.S.0089 | Concrete Staining S-40-84 | SF |
| 517.1010.S.0090 | Concrete Staining S-40-86 | SF |
| 517.1010.S.0091 | Concrete Staining S-40-91 | SF |
| 517.1010.S.0092 | Concrete Staining S-40-93 | SF |
| 517.1010.S.0094 | Concrete Staining S-40-97 | SF |
| 517.1010.S.0095 | Concrete Staining S-40-98 | SF |
| 517.1010.S.0096 | Concrete Staining S-40-103 | SF |
| 517.1010.S.0097 | Concrete Staining S-40-105 | SF |
| 517.1010.S.0098 | Concrete Staining S-40-112 | SF |
| 517.1010.S.0099 | Concrete Staining S-40-138 | SF |
| 517.1010.S.0103 | Concrete Staining B-40-871 | SF |
| 517.1010.S.0104 | Concrete Staining B-40-872 | SF |
| 517.1010.S.0105 | Concrete Staining B-40-873 | SF |
| 517.1010.S.0106 | Concrete Staining B-40-874 | SF |
| 517.1010.S.0107 | Concrete Staining R-40-495 | SF |
| 517.1010.S.0109 | Concrete Staining R-40-631 | SF |
| 517.1010.S.0110 | Concrete Staining R-40-655 | SF |
| 517.1010.S.0111 | Concrete Staining S-40-782 | SF |
| 517.1010.S.0112 | Concrete Staining S-40-787 | SF |
| 517.1010.S.0113 | Concrete Staining S-67-47 | SF |

Payment is full compensation for furnishing and applying the two coat system; for preparing the concrete surface; and for preparing the sample panels.
517-110 (20140630)

## 92. Concrete Staining Multi-Color B-40-870, Item 517.1015.S.0001; R-40-525, Item 517.1015.S.0002; R-40-529, Item 517.1015.S.0003; R-40-532, Item 517.1015.S.0004; R-40-534, Item 517.1015.S.0005; R-40-540, Item 517.1015.S.0006; Minor Retaining Wall R-2, Item 517.1015.S.0007; R-40-524, Item 517.1015.S.0008.

### A Description

Furnish and apply a multi-color concrete stain to the exposed concrete surfaces of the structure, as detailed in the plans and as hereinafter provided.

### B Materials

#### B.1 Mortar

Use mortar for sack rubbing the concrete surfaces as given in standard spec 502.3.7.5 or use one of the following products:

| | |
|---|---|
| Preblended, Packaged Type II Cement: | Tri-Mix by TK Products |
| | Thoroseal Pearl Gray by Thoro Products |

The mortar shall contain one of the following acrylic bonding admixtures mixed and applied in accordance to manufacturer's recommendations:

| | |
|---|---|
| Acrylic Bonding Admixture: | TK-225 by TK Products |
| | Achro 60 by Thoro Products |
| | Achro Set by Master Builders |

#### B.2 Concrete Stain

Use concrete stain manufactured for use on exterior concrete surfaces. Use the following products, or equal as approved by the department:

Tri-Sheen Concrete Surfacer, Smooth by TK Products
Tri-Sheen Acrylic by TK Products
TK-1450 Natural Look Urethane Anti-Graffiti Primers by TK Products
Safe-Cure and Seal EPX by Chem Masters
H&C Concrete Stain Solid Color Water Based by Sherwin-Williams

### C Construction

#### C.1 General

Furnish, prepare, apply, cure, and store all materials in accordance to the product manufacturer's specifications for the type and condition of application required.

Match or exceed the stain manufacturer's minimum recommended curing time of the concrete or 28 days, whichever is greater, prior to staining.

#### C.2 Preparation of Concrete Surfaces

Provide a sack rubbed finish in accordance to standard spec 502.3.7.5, using mortar as indicated above on concrete surfaces with open voids or honeycombing.

Following the sack rubbing, clean all concrete surfaces that are to be coated to ensure that the surface is free of all laitance, dirt, dust, grease, efflorescence, and any foreign material and that the surface will accept the coating material according to product requirements. As a minimum, clean the surface using a 3000-psi water blast. Hold the nozzle of the water blaster approximately 6 inches from the concrete surface and move it continuously in a sweeping motion. Give special attention to smooth concrete surfaces to produce an acceptable surface texture. Correct any surface problems resulting from the surface preparation methods. Grit blasting of the concrete surface is not allowed.

**C.3 Staining Concrete Surfaces**
Apply the concrete stain in accordance to the manufacturer's recommendations.

Apply the concrete stain when the temperature of the concrete surface is 45º F or higher, or as given by the manufacturer.

The color of the staining shall produce a multi-color effect that consists of multiple colors replicating varying natural stone coloration. Stain the joints between stones produced by the form liner to create the appearance of grouted joints.

Do not begin staining the structure until earthwork operations are completed to a point where this work can begin without receiving damage. Where this work is adjacent to exposed soil or pavement areas, provide temporary covering protection from overspray or splatter.

**C.4 Test Areas**
Prior to applying stain to the structure, apply the stain to sample panels measuring a minimum of 48-inches x 48-inches and constructed to demonstrate workmanship in the use of the form liner specified on the structure if applicable. Match or exceed the stain manufacturer's minimum recommended curing time of the concrete or 28 days, whichever is greater, prior to staining. Submit color samples to the department prior to staining the sample panels. Prepare the concrete surfaces of the sample panels and apply stain using the same materials and in the same manner as proposed for the structure, including staining of the joints between stones produced by the form liner. Do not apply stain to the structure until the department approves the test panels.

**C.5 Surfaces to be Coated.**
Apply concrete stain to the surfaces in accordance to the plan.

**D Measurement**
The department will measure Concrete Staining Multi-Color (Structure) in area by the square foot of surface, acceptably prepared and stained.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 517.1015.S.0001 | Concrete Staining Multi-Color B-40-870 | SF |
| 517.1015.S.0002 | Concrete Staining Multi-Color R-40-525 | SF |
| 517.1015.S.0003 | Concrete Staining Multi-Color R-40-529 | SF |
| 517.1015.S.0004 | Concrete Staining Multi-Color R-40-532 | SF |
| 517.1015.S.0005 | Concrete Staining Multi-Color R-40-534 | SF |
| 517.1015.S.0006 | Concrete Staining Multi-Color R-40-540 | SF |
| 517.1015.S.0007 | Concrete Staining Multi-Color Minor Retaining Wall R-2 | SF |
| 517.1015.S.0008 | Concrete Staining Multi-Color R-40-524 | SF |

Payment is full compensation for furnishing and applying the coloring system; for preparing the concrete surface; and for constructing and staining the sample panels.
517-115 (20140630)

## 93. Architectural Surface Treatment R-40-467, Item 517.1050.S.0001; R-40-468, Item 517.1050.S.0002; R-40-469, Item 517.1050.S.0003; R-40-470, Item 517.1050.S.0004; R-40-497, Item 517.1050.S.0005; R-40-498, Item 517.1050.S.0006; R-40-505, Item 517.1050.S.0007; R-40-507, Item 517.1050.S.0008; R-40-509, Item 517.1050.S.0009; R-40-511, Item 517.1050.S.0011; R-40-516, Item 517.1050.S.0012; R-40-518, Item 517.1050.S.0013; R-40-520, Item 517.1050.S.0014; R-40-522, Item 517.1050.S.0015; R-40-524, Item 517.1050.S.0016; R-40-525, Item 517.1050.S.0017; R-40-527, Item 517.1050.S.0018; R-40-529, Item 517.1050.S.0019; R-40-532, Item 517.1050.S.0020; R-40-534, Item 517.1050.S.0021; R-40-535, Item 517.1050.S.0022; R-40-540, Item 517.1050.S.0023; R-40-545, Item 517.1050.S.0024; R-40-547, Item 517.1050.S.0025; R-40-558, Item 517.1050.S.0026; R-40-559, Item 517.1050.S.0027; B-40-850, Item 517.1050.S.0028; B-40-858, Item 517.1050.S.0029; B-40-870, Item 517.1050.S.0030; R-40-495, Item 517.1050.S.0031; R-40-631, Item 517.1050.S.0032; R-40-655, Item 517.1050.S.0033; R-40-557, Item 517.1050.S.0034; Minor Retaining Wall R-2, Item 517.1050.S.0035.

### A Description
Construct a concrete masonry architectural surface treatment on the exposed concrete surfaces of the structure, as detailed in the plans and as hereinafter provided.

### B Materials
Use form liners that attach easily to the forming system, and do not compress more than ¼-inch when poured at a rate of 10 vertical feet per hour.

Use a release agent that is compatible with the form liner and coloring materials.

Wall ties shall have set "break-backs" at a minimum of ¾-inches from the finished concrete surface.

## C Construction

### C.1 Equipment

Equipment and tools necessary for performing all parts of the work shall be satisfactory as to design, capacity, and mechanical condition for the purposes intended. Repair, improve, replace, or supplement all equipment that is not maintained in full working order, or which is proven inadequate to obtain the results prescribed.

### C.2 Form Liner Preparation

Clean the form liner prior to each pour and ensure that it is free of any build-up. Visually inspect each liner for blemishes or tears, and repair if necessary per manufacturer's recommendations.

Apply form release per manufacturer's recommendations.

### C.3 Form Liner Attachment

Place adjacent liners less than ¼-inch from each other, attach liner securely to forms in accordance to the manufacturer's recommendations, and coordinate wall ties with form liner and form manufacturer, e.g., diameter, size, and frequency.

### C.4 Surface Finishing

Ensure that the textured surface is free of laitance; sandblasting is not permitted.

Grind or fill pouring blemishes.

## D Measurement

The department will not measure Architectural Surface Treatment (Structure). The department will use pay plan quantity according to the Pay Plan Quantity article.

## E Payment

The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 517.1050.S.0001 | Architectural Surface Treatment R-40-467 | SF |
| 517.1050.S.0002 | Architectural Surface Treatment R-40-468 | SF |
| 517.1050.S.0003 | Architectural Surface Treatment R-40-469 | SF |
| 517.1050.S.0004 | Architectural Surface Treatment R-40-470 | SF |
| 517.1050.S.0005 | Architectural Surface Treatment R-40-497 | SF |
| 517.1050.S.0006 | Architectural Surface Treatment R-40-498 | SF |
| 517.1050.S.0007 | Architectural Surface Treatment R-40-505 | SF |
| 517.1050.S.0008 | Architectural Surface Treatment R-40-507 | SF |
| 517.1050.S.0009 | Architectural Surface Treatment R-40-509 | SF |
| 517.1050.S.0011 | Architectural Surface Treatment R-40-511 | SF |
| 517.1050.S.0012 | Architectural Surface Treatment R-40-516 | SF |

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 517.1050.S.0013 | Architectural Surface Treatment R-40-518 | SF |
| 517.1050.S.0014 | Architectural Surface Treatment R-40-520 | SF |
| 517.1050.S.0015 | Architectural Surface Treatment R-40-522 | SF |
| 517.1050.S.0016 | Architectural Surface Treatment R-40-524 | SF |
| 517.1050.S.0017 | Architectural Surface Treatment R-40-525 | SF |
| 517.1050.S.0018 | Architectural Surface Treatment R-40-527 | SF |
| 517.1050.S.0019 | Architectural Surface Treatment R-40-529 | SF |
| 517.1050.S.0020 | Architectural Surface Treatment R-40-532 | SF |
| 517.1050.S.0021 | Architectural Surface Treatment R-40-534 | SF |
| 517.1050.S.0022 | Architectural Surface Treatment R-40-535 | SF |
| 517.1050.S.0023 | Architectural Surface Treatment R-40-540 | SF |
| 517.1050.S.0024 | Architectural Surface Treatment R-40-545 | SF |
| 517.1050.S.0025 | Architectural Surface Treatment R-40-547 | SF |
| 517.1050.S.0026 | Architectural Surface Treatment R-40-558 | SF |
| 517.1050.S.0027 | Architectural Surface Treatment R-40-559 | SF |
| 517.1050.S.0028 | Architectural Surface Treatment B-40-850 | SF |
| 517.1050.S.0029 | Architectural Surface Treatment B-40-858 | SF |
| 517.1050.S.0030 | Architectural Surface Treatment B-40-870 | SF |
| 517.1050.S.0031 | Architectural Surface Treatment R-40-495 | SF |
| 517.1050.S.0032 | Architectural Surface Treatment R-40-631 | SF |
| 517.1050.S.0033 | Architectural Surface Treatment R-40-655 | SF |
| 517.1050.S.0034 | Architectural Surface Treatment R-40-557 | SF |
| 517.1050.S.0035 | Architectural Surface Treatment Minor Retaining Wall R-2 | SF |

Payment is full compensation for producing the proposed architectural surface treatment including: preparing the foundation; finishing and protecting the surface treatment; and for properly disposing of surplus material.
517-150 (20110615)

## 94. Noise Barriers Double-Sided Sound Absorptive N-40-61, Item 531.0300.S.0001; N-40-62, Item 531.0300.S.0002; N-40-63, Item 531.0300.S.0003; N-40-64, Item 531.0300.S.0004; N-40-66, Item 531.0300.S.0006; N-40-67, Item 531.0300.S.0007; N-40-76, Item 531.0300.S.0008; N-40-77, Item 531.0300.S.0009; N-40-78, Item 531.0300.S.0010; N-40-79, Item 531.0300.S.0011.

**A Description**
This special provision describes designing, fabricating, transporting, and erecting double-sided sound absorptive noise barriers in accordance to the plans, applicable portions of the standard specifications, the department-approved installation specifications, and as hereinafter provided.

## B Materials

All materials used in the work shall conform to the pertinent requirements of the standard specifications and as hereinafter specified.

Provide grade A, A-2, A-FA, A-S, A-T, A-IS, or A-IP concrete conforming to standard spec 501 for concrete posts and the core component of composite concrete sound absorbing panels.

### B.1 System Pre-Qualification

The noise wall system supplied must be pre-qualified by the department. The department maintains a list of pre-qualified systems which can be viewed at:

http://wisconsindot.gov/Documents/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/ap2015/noise-wall-systems-4-16-2012.pdf .

Systems eligible for use on this project shall be pre-qualified and added to that list prior to the award of this contract.

### B.2 Design

The department specifies pre-qualified double-sided sound absorptive noise barrier products on the department's approved product lists available at:

http://wisconsindot.gov/Documents/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/ap2015/noise-wall-systems-4-16-2012.pdf

Provide the name of the selected system to the engineer within 25 days after award of the contract. Schedule a pre-design meeting with the engineer subsequent to award of the contract and prior to beginning design of the noise barrier. The suppliers of the noise barrier components shall attend this meeting.

#### B.2.1 Structural and Foundation Design

The structural and foundation design of the noise barrier system shall be in accordance to the current edition of "Guide Specifications for Structural Design of Sound Barriers published by the American Association of State Highway and Transportation Officials (AASHTO), 444 North Capitol Street, NW, Suite 225, Washington, DC 20001.

Design the noise barrier to withstand wind pressure, applied perpendicular to the barrier, in each direction, of 28.5 pounds per square foot for ground mounted barriers, and 37.5 pounds per square foot for structure mounted barriers.

The top 3-feet of supporting soil shall be ignored in the design of ground-mounted barrier foundations.

#### B.2.2 Fire Hose Access Openings

Design fire hose access openings, at locations shown on the plans, with additional reinforcement and protective coating around the opening as necessary to maintain structural integrity. Detail drawings shall show the additional reinforcement and method for attaching the Fire Hydrant Location Signs to the barrier panel.

### B.2.3 Barrier Profile

Unless otherwise shown on the plan or approved by the engineer, design the top of the noise barrier to be horizontal and at or above the acoustic elevation line shown on the plans. The bottom elevation of the noise barrier shall be as shown on the plans. Changes in elevation shall be accomplished by stepping sections at posts. Steps shall not exceed 3-feet in height. All joints shall be horizontal or vertical and shall be aligned with the adjacent panels.

### B.2.4 Panel Orientation

Design the panels to prevent entrapment and ponding of water. Avoid inadvertently providing areas for perching, nesting of birds, or collecting of dirt and debris in the design of the noise barrier system.

### B.2.5 Color and Surface Texture

Unless otherwise shown and provided for in the plans, wall pattern shall contain textures with relief features of sufficient depth and quantity to be distinguishable at an observation distance of 500-feet. The color(s) and texture(s) chosen will be within the following parameters; however, at the discretion of the engineer, a single color and/or a single texture may be selected for either side of the noise barrier.

| | **Freeway Side** | **Residential Side** |
|---|---|---|
| Number of colors | 2 | 2 |
| In the proportion of | 75:25 (±5%) | 75:25 (±5%) |
| Number of textures | 2 | 2 |
| In the proportion of | 75:25 (±5%) | 75:25 (±5%) |

The final color of the panels and posts shall be as shown on the plans and match the Federal Standard color system list. Coating and coloring of the post and panels shall be shop applied.

Base Color – 33564
Accent Color #1 - 33448

All individual noise barrier panels shall be the same color on both sides, unless otherwise approved by the engineer.

Supply and deliver to the engineer a 3-foot x 5-foot minimum test panel for each panel type, with the specified pattern and colors. Obtain the engineer's acceptance of the panel's pattern and color prior to production of the panels required for the contract. The accepted pattern and color test panels shall remain on the project site in a readily accessible location for the duration of the project. The accepted pattern and color sample panels will be the standard for all noise barriers on the project.

The engineer will visually inspect panels for color consistency upon arrival at the project. The panels shall have no substantial variation in color from the accepted sample panel submitted for the project. All panels with substantial color variation will be rejected and shall be removed from the project.

**B.2.6 Sound Transmission Loss (TL)**

Design the noise barrier panel material to achieve a transmission loss equal to or greater than 20 decibels in all test frequency bands.

**B.2.7 Noise Reduction Coefficient (NRC)**

Design the noise barrier so that at least 70 percent of the highway side of the noise barrier panels that are 2-feet above the ground shall have a minimum NRC of 0.80. The remaining noise barrier panels on the highway side that are 2-feet or more above the ground shall have a minimum NRC of 0.70. The minimum NRC for panels on the residential side, which are 2-feet above the ground shall be 0.70.

**B.2.8 Structural Steel**

Galvanize all structural steel after fabrication by the hot dip process in accordance to ASTM A123. Galvanize steel hardware and threaded fasteners, bolts, nuts, and washers in accordance to ASTM A153.

Shop coat all steel galvanized surfaces exposed to view with an approved paint system as hereinafter specified. Clean galvanizing surfaces to be painted per SSPC-SP1 to remove, chlorides, sulfates zinc salts, oil, dirt, organic matter and other contaminants. The cleaned surface should then be Brush Blast Cleaned per SSPC-SP7 to create a slight angular surface profile (1.0 – 1.5 mils suggested) for adhesion. Blasting should not fracture the galvanized finish or remove any dry film thickness.

After cleaning, provide a tie coat from an approved coating system that is specifically intended to be used on a galvanized surface. The tie coat shall etch the galvanized surface and prepare the surface for the top coat. Apply a top coat matching the finished color specified in B.2.5. Use a pre-approved top coat that is resistant to the effects of the sun, and is suitable for use in a marine environment. Exercise care so as not to damage the painted surfaces during shipment and erection of the noise barriers.

Use one of the qualified paint sources and products given below. An equivalent system may be used with the written approval of the engineer. Supply the engineer with the product data sheets before applying any coating. The product data sheets shall indicate the mixing and thinning directions, the recommended spray nozzles and pressures, the minimum drying time for shop applied coats, and the recommended procedures for coating galvanized bolts, nuts, and washers.

| Producer | Coat | Products | Dry Film Minimum Thickness (mils) | Minimum Time Between Coats (hours) |
|---|---|---|---|---|
| Sherwin Williams<br>1051 Permeter Drive, Suite 710<br>Schaumburg, IL 60173<br>847-330-1562 | Tie | Recoatable Epoxy Primer B67-5 Series/B67V5 | 2.0 to 4.0 | 6 |
| | Top | Acrolon 218 HS Polyurethane, B65-650 | 2.0 to 4.0 | NA |
| Carbolin<br>350 Hanley Industrial<br>St Louis, MO 63144<br>314-644-1000 | Tie | Rustbond Penetrating Sealer FC | 1 | 36 |
| | Top | Carboline 133 LH | 4 | NA |
| Wasser Corporation<br>4118 B Place NW<br>Suite B<br>Auburn, WA 98001 | Tie | MC-Ferrox B 100 | 3.0 to 5.0 | 8 |
| | Top | MC-Luster 100 | 2.0 to 4.0 | NA |

### B.2.9 Design Coordination

#### B.2.9.1 Underground Utility and Drainage Crossings

Design the noise barrier post spacing so as not to interfere with the existing utility and drainage facilities.

Design the noise barrier post spacing so as not to interfere with proposed utility and drainage facilities shown in the plans. This includes proposed roadway lighting and ITS facilities.

#### B.2.9.2 Proposed Structures

For noise barriers mounted behind or near proposed retaining walls, coordinate and design the noise barrier post spacing so as to not interfere with embedded portion of the proposed retaining walls, including MSE wall soil reinforcement and tieback anchors on soldier pile and timber lagging retaining walls.

For noise barriers mounted on proposed bridges and retaining walls, coordinate and design the noise barrier post spacing to coincide with noise barrier post and embedded noise barrier anchor assembly spacing shown on the bridge and retaining wall plans. Coordinate any required changes to the noise barrier post spacing and embedded noise barrier anchor assembly locations shown on the bridge and retaining wall plans, if required for the design of the noise barrier.

| Noise Barrier | Mounted on Structure[1] | Ground Mounted Behind Structure[1] |
|---|---|---|
| N-40-61 | R-40-516 Station 10+00 to 11+65 | R-40-516 Station 11+65 to 17+25 |
| N-40-63 | R-40-529 Station 10+00 to 14+00 | NA |
| N-40-64 | R-40-468 Station 10+00 to 16+50 | NA |
| N-40-64 | R-40-532 Station 10+00 to 19+00 | NA |
| N-40-67 | R-40-525 Station 9+55 to 15+70 | NA |
| N-40-76 | B-40-786 Station 581WS+91 to 588WS+91 | NA |
| N-40-76 | R-40-495 Station 13+42 to 16+32 | NA |
| N-40-76 | B-40-796 Station 591WS+27 to 592WS+71 | NA |
| N-40-78 | R-40-498 Sta 11+20 to 18+40 | NA |

1. Stations given are retaining wall stations and are approximate unless otherwise noted.

**B.2.10 Project Submittal Requirements**

Submit three copies of the following documents to the engineer for review:

1. All structural and foundation design calculations.
2. Detailed design/shop drawings.
3. Certifications for all materials, including trade name of the products along with the name and address of the manufacturers.
4. Specifications regarding installation requirements and sequence of construction, including a detailed bill of materials.
5. Detailed colored plan of the aesthetic treatment for the entire noise barrier.
6. Detailed handling plan for wall panels.

Submit the following documents to the Bureau of Structures Design Section:

1. Three sets of design/shop drawings and one set of design calculations for review and acceptance. Any necessary revisions and/or corrections required for acceptance will be noted and returned to the contractor.

Design calculations shall be on 8½-inch x 11-inch sheets, neatly bound with a title sheet listing the complete project identification number and sound barrier designation. Design/shop drawings shall conform to the contract plans and the requirements of these special provisions. The design/shop drawings shall consist of plan and profile sheets, details, explanatory notes, erection diagrams, aesthetic treatments, and other working plans. All dimensions, sizes of material, material information and other information necessary for the complete fabrication and construction of the noise barrier should be designated on the appropriate sheets. The design/shop drawings shall be drawn to an appropriate scale on reproducible sheets 11 x 17-inches including borders. Each sheet shall

carry the complete project identification number and noise barrier designation. Design/shop drawings and calculations shall be signed, sealed and dated by a professional engineer licensed in the State of Wisconsin. Handling plan shall include details of storage and handling at the site, sequence of erection, and crane placement and capacities.

**B.2.11 Review Process**

All documents, including drawings, calculations and related material submitted for review and acceptance by the engineer.

It is expressly understood that the engineer's review and acceptance of the drawings, calculations, and related material, submitted by the contractor, means only an acceptance of the character and sufficiency of the details, and does not relieve the contractor from responsibility in regard to errors or omissions on said submittals.

The final accepted design documents and/or shop drawings shall become a part of the contract. Any substitution of materials or dimensions contemplated by the contractor's submitted documents, different from materials or dimensions shown on the contract plans, shall be made only when approved by the engineer, and in such case, additional costs resulting from such substitution shall be borne by the contractor.

Ordering of materials by the contractor prior to acceptance of the submittal requirements shall be at the contractor's own risk.

**B.3 Wall System Testing Requirements**

All test reports required in section B.3 shall reference the specific facility which will be producing material for this contract. Test reports shall be representative of differing production lots on materials manufactured for this specific contract which is representative of the manufacturer's continuous production for wall systems. Panels tested or from which samples will be taken from shall be selected and appropriately marked by the engineer either at the manufactures' plant or from panels delivered to the project at the engineer's option. Test reports will be required for each lot of material not to exceed 100,000 SF of noise barrier produced. Testing shall be conducted on panels within the first 30,000 SF of production of each lot not exceeding 100,000 SF. For projects that do not exceed 100,000 SF, a minimum of two lots of material will represent the project, each lot representing equivalent square footage. The first set of tests conducted for projects that do not exceed 100,000 SF shall be within the first third of the total square footage of the project.

Products tested should be tested as a system under the requirements in B.3.1 and B.3.2; this includes stain intended for the supplied concrete and composite concrete components wall panels.

**B.3.1 Noise Reduction Coefficient (NRC)**

The noise barrier panel shall be tested in accordance to ASTM C423, and placed in accordance to ASTM E795, mounting type A, to determine the noise reduction coefficient (NRC) of the material. Submit to the engineer an independent testing laboratory test report

that shows that the noise barrier panels achieve an NRC as specified for each side of the barrier.

### B.3.2 Salt Scaling Resistance

All sound absorbing composite concrete and composite concrete components shall be tested for salt scaling resistance in accordance to ASTM C672 and the following modifications and/or requirements.

#### B.3.2.1 Test Specimens

For the purposes of the test, three specimens of a full cross section of the composite panel at least 12 inches x 12-inches shall be selected at random from the provided composite panel as defined in B.3. Sample specimens shall be from production panels as selected and marked by the engineer, representative of the manufacturer's continuous production operation.

The surfaces of the sample specimen(s) shall be prepared for testing as follows. Brush the surfaces of the sample to remove any loose particles. The test specimens shall then be submerged in water for a period of 24 hours prior to testing. Immediately following this, the specimens shall be covered with the sodium chloride solution as stated below.

#### B.3.2.2 Test Procedure

Place samples in a 5 sided water tight container in which a solution of sodium chloride (concentration 3% by mass) fully submerges the specimen. A ¼- inch of sodium chloride solution shall be maintained above the top surface of the fully submerged specimen within the container.

The specimens shall then be subjected to continuous freeze-thaw cycles as follows:

After each five cycles, the salt solution and particles of deteriorated concrete shall be removed from the slab and collected in a watertight container. The operation is best accomplished by tilting the slab in a funnel approximately 20-inches in diameter and washing the surface of the slab with a 3% sodium chloride solution. This washing should continue until all loose particles are removed from the concrete. The solution shall then be strained through a filter and the residue dried out at 221 degrees Fahrenheit to a constant mass condition. The residue shall be cumulatively weighed after each five cycles. This residue shall be defined as the loss of mass and expressed in pounds per square foot of exposed slab area. This is to exclude the concrete core for composite concrete panels in the calculation of the area used to express the mass loss per square foot. The loss of mass shall be calculated to the nearest 0.01 pounds per square foot. The surfaces should be rated in accordance to 10.1.5 of ASTM C672 including any delamination of the sound absorbing material from the concrete core for composite concrete materials. After the washing of each slab, a new solution of sodium chloride (concentration 3% by mass) shall be placed in the 5 sided water tight container to fully submerge the specimen to a depth of ¼-inch above the top surface of the fully submerged test specimen.

The test shall continue until 50 freeze-thaw cycles have been completed.

During the test each specimen shall be positioned and supported to allow free circulation of the test solution under, around, and over test pieces. The bottom of the specimens shall be supported on blocks in a manner to assure movement of moisture through and around the test specimen(s).

**B.3.2.3 Test Report**

Submit to the engineer an independent testing laboratory test report which shows that all solid and composite concrete products meet or exceed the following criteria:

a. After 50 freeze-thaw cycles the test specimens shall not exhibit excessive deterioration in the form of cracks, spalls, aggregate disintegration, delamentation, or other objectionable features.
b. Compliance with the test requirements is based upon a loss of mass of not more than 0.2 pounds per square foot from the surface after 50 cycles of freezing and thawing. The measured surfaces are not to include the exposed surface of any core material of a composite concrete component.
c. The report shall include the following:
    1. Name of manufacturer.
    2. Location of production.
    3. Production description.
    4. Date product sample was cast.
    5. Commencement date of testing.
    6. Specimen identification.
    7. 5x7-inch color photographs of the test specimens before and after the 50 cycles freeze-thaw test.
    8. A graph of the cumulative mass loss of each specimen plotted against the number of freeze-thaw cycles for 5, 10, 15, 20, 25, 30, 40, and 50 freeze-thaw cycles.
    9. Visual rating in accordance to 10.1.5 ASTM C672 including report of any delamination of the sound absorbing material from the concrete core for composite concrete components.

**B.4 Wall Systems Material Requirement**

Contractor shall provide certification of compliance to all applicable requirements in B.4. All material certifications shall reference the specific facility manufacturing the material and this contract. Certifications will be required for each lot of material not to exceed 100,000 SF of noise barrier produced. For projects that do not exceed 100,000 SF, a minimum of 2 lots of material will represent the project, each lot representing equivalent square footage.

**B.4.1 Sound Transmission Loss (TL)**

Submit to the engineer certification of compliance that the sound transmission loss of the panel material, when tested in accordance to ASTM Standard E90, achieves a transmission loss as specified in B.2.6.

### B.4.2 Structural Steel

Submit to the engineer certification of compliance that structural steel galvanized after fabrication is in accordance to ASTM A123. Steel posts of post and panel walls shall be galvanized. Any galvanized surfaces exposed to view shall be coated with an approved paint system as referenced in B.2.8.

### B.4.3 Accelerated Weathering

Submit to the engineer certification of compliance that all coatings on barrier components, with the exception of structural steel and wood components, comply with the following requirements when tested by ASTM Standard G155, G153, or G152 after 2400 hours of exposure on a cement based test specimen(s).

1. No checking when rated in accordance to ASTM D660.
2. No cracking when rated in accordance to ASTM D661.
3. No blistering when rated in accordance to ASTM D714.
4. No difference in adhesion between the unexposed control sample and an exposed sample when tested in accordance to ASTM D3359, Method A.
5. No chalking less than #7 rating when rated in accordance to ASTM D4214.
6. No color change greater than 5 NBS units when measured in accordance to ASTM D2244, using illuminant D65 and the 1964 10 degree standard observer.

### B.4.4 Corrosion Resistance (Salt Fog Exposure)

Submit to the engineer certification of compliance that all coated steel components, with the exception of structural steel, has a coating system that has been tested for corrosion resistance in accordance to ASTM B117 and comply with the following requirements:

1. No checking when rated in accordance to ASTM D660.
2. No blistering when rated in accordance to ASTM D714.
3. No loss of adhesion when tested in accordance to ASTM D3359 with no evidence of corrosion along the edges of the samples or along the score lines or other defects.

### B.4.5 Steel Panels

All steel panels shall be minimum nominal 20 gauge galvanized steel. The steel panels shall be free from laminations, blisters, slivers, open seams, pits from heavy rolled-in scale, ragged edges or other defects that may affect their appearance or use for the intended purpose. All shearing, cutting, and punching shall be done prior to preparation of the panels for application of coatings.

### B.4.6 Aluminum Panels

All aluminum panels shall be minimum 0.063 inch nominal thickness or greater. The aluminum panels shall be free from laminations, blisters, slivers, open seams, pits from heavy rolled-in scale, ragged edges or other defects that may affect their appearance or use for the intended purpose. All aluminum panels shall conform to the thickness tolerances of the Aluminum Association, Inc. All shearing, cutting, and punching shall be done prior to preparation of the panels for application of coatings.

### B.4.7 Timber Components

All lumber and timber furnished for the work shall be in accordance to the requirements of standard spec 507 and as hereinafter specified.

#### B.4.7.1 Species of Wood

All lumber and timber, with the exception of Glue Laminated Timber, shall be from one of the following species: Douglas Fir-Larch, Southern Pine, and Hem-Fir.

Glue laminated timber shall be Southern Pine.

#### B.4.7.2 Preservative Treatment

All timber components shall receive a chemical preservative treatment. The wood shall be dried to 19% or less prior to treatment. The wood shall be treated using a chromated-copper arsenate solution in accordance to standard spec 507.2.2.6. After treatment, all wood having nominal dimensions less than 3-inches by 3-inches shall be air or kiln dried to a maximum moisture content of 15%. Wood in greater dimensions shall be dried to maximum moisture content of 19%. The required Certificate of Preservative Treatment shall indicate compliance with the maximum moisture content requirement(s), in addition to requirements of the preservative treatment specifications herewith set forth. Wood shall be protected from increases in moisture content until incorporated into the work.

#### B.4.7.3 Glue Laminated Timber

Glue laminated timber shall contain the mark of a recognized inspection agency as being in conformance with ANSI/AITC A190.1. A wet-use adhesive suitable for use with treated wood as shown in ANSI/AITC A190.1 shall be used. Members shall be of Industrial appearance grade per AITC 110.

Lumber to be glue laminated shall be pressure preservative treated prior to gluing to a retention of 0.4 pounds per cubic foot.

#### B.4.7.4 Lumber

Non-laminated timber shall not exceed the proportion of six (nominal width) to one (nominal thickness) and shall be No. 1 grade or better. Sound knots shall extend through members no farther than 50 percent of the cross-section width. Unsound knots are not permitted. Knots are not permitted in the fastening area of any member.

#### B.4.7.5 Plywood

Plywood shall be exterior type conforming to the provisions of the US Product Standards PS-1 and shall bear the mark of a qualified and approved inspection and testing agency.

#### B.4.7.6 Sealant/Stain

All wood components of the barrier system shall be coated with a wood sealer/stain as hereinafter provided.

The manufacturer shall select a sealer/stain from one of the sources on the department's approved product list. Product data sheets shall be provided which indicate the mixing directions and recommended method(s) of application. The method and rate of application shall be as recommended by the producer.

### B.4.7.7 Hardware and Fasteners

All hardware and fastening devices shall be either hot dipped galvanized steel or made of nonferrous or stainless steel. Fastening devices shall be screws; no nails or staples shall be allowed.

### B.4.7.8 Mineral Fiber Material

Mineral fiber material used to increase sound absorption shall be manufactured in accordance to Federal Specification HH-1-558B and ASTM C612. Mineral fiber material shall have a minimum density of 6 pounds per cubic foot, shall absorb less than 1 percent of water when tested in accordance to ASTM C553, be non-corrosive, and nonhygroscopic. The mineral fiber material shall be fastened to the noise barrier system in a manner to prevent sagging when in a saturated condition.

## C Construction

### C.1 General

Construct the noise barriers at the locations shown on the plans, in accordance to the contract specifications and design drawings and/or as directed by the engineer. All sound absorbing composite concrete components shall be delivered to the project site(s) as a finished component. A sound absorbing composite concrete system, which has the sound absorbing material glue-laminated or alternately affixed by a secondary adhesion method on the project site, will not be allowed.

Provide a minimum ten day notice to the engineer of the date that the fabrication of the noise barrier material will commence. Certifications and test reports will be required for each lot of material not to exceed 100,000 SF of noise barrier produced. For projects that do not exceed 100,000 SF a minimum of 2 lots of material will represent the project, each lot representing equivalent square footage.

Panels from which samples will be taken from for testing required in B.3 shall be selected and appropriately marked by the engineer either at the manufactures' plant or from panels delivered to the project at the engineer's option. Test reports will be required for each lot of material not to exceed 100,000 SF of noise barrier produced. Testing shall be conducted on panels within the first 30,000 SF of production of each lot not exceeding 100,000 SF. For projects that do not exceed 100,000 SF, a minimum of two lots of material will represent the project, each lot representing equivalent square footage. The first set of tests conducted for projects that do not exceed 100,000 SF shall be within the first third of the total square footage of the project.

Inspect all materials delivered to the construction site for proper dimensions, honeycombing, cracks, voids, surface defects, consistency in color and texture, and any other damage or imperfections, prior to installation.

If any part of the noise barrier material fails to comply with any requirements of the contract specification, the component shall either be corrected, permanently marked as unacceptable and be disposed of by the contractor or accepted at a reduced price. The decision will be made by the engineer and is dependent on the severity of the specification deviation.

**C.2 Fire Hydrant Location Signs**

Furnish and install fire hydrant location sign(s). These shall be attached to the noise barrier at each location shown on the plans by a method as shown on the department approved drawings. The signs shall conform and be of the type specified in the department's sign plate book, plate D9-54 and/or D9-54A.

Compensation for furnishing and placing the fire hydrant location signs shall be included in the contract price for Noise Barriers Double-Sided Sound Absorptive and no additional compensation therefore will be allowed.

**C.3 Name Plates**

Furnish and install name plates conforming to the requirements of standard spec 506.2.4.

Furnish and place one name plate on each noise barrier at the location indicated on the plans.

Rigidly attach each plate to the barrier by a means approved by the engineer.

Compensation for furnishing and placing of name plates shall be included in the contract price for Noise Barriers, Double-Sided Sound Absorptive Structure and no additional compensation therefore will be allowed.

**C.4 Structure Mounted Noise Barriers**

Do not erect noise barriers mounted to bridge or retaining wall structures until after the concrete masonry for bridge decks and parapets or retaining wall moment slabs and parapets have attained their specified 28-day strength.

For noise barriers mounted to moment slabs and parapets on top of MSE retaining walls, erection of the noise barrier is limited to two-thirds of the height of the noise barrier acoustical line shown in the plans prior to placement of earth fill or pavement over the top of the moment slab as shown in the plans. Erection of the noise barrier in excess of two-thirds its height to the full height of the noise barrier acoustical line shown on the plans may not occur until after the earth fill or pavement structure over the top of the moment slab shown in the plans is complete.

Secure noise barrier posts to anchor assemblies conforming to the procedures enumerated in department form DT2321. Complete department form DT2321 for each noise barrier post. Indicate the parties responsible for the installation and submit the form to the engineer for inclusion in the permanent project record.

**C.5 Tolerances** The posts and panels comprising the noise barrier shall be installed plumb within ½-inch of vertical in 20-feet. The posts shall be located to the line and grades as shown in the plans to within +/- ¾-inch. Horizontal joints of adjacent panels shall be lined up to a vertical tolerance of ¼-inch. Where vertical adjustments are required for alignment, a mortar base or steel shims shall be used. Galvanize and prime coat steel shims in accordance to B.2.8. The top elevation of panels shall be within +/- 1-inch of the top elevation of adjacent posts. The ends of the panels adjacent to the posts shall be within ¾-inch of the post web or shall overlap the post flange a minimum of 2 inches, whichever provides the larger overlap.

**D Measurement**

The department will measure Noise Barriers Double-Sided Sound Absorptive by the square foot acceptably completed, measured as the area the original plans show plus engineer-approved modifications to the plan quantity caused by plan corrections or revisions.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 531.0300.S.0001 | Noise Barriers Double-Sided Sound Absorptive N-40-61 | SF |
| 531.0300.S.0002 | Noise Barriers Double-Sided Sound Absorptive N-40-62 | SF |
| 531.0300.S.0003 | Noise Barriers Double-Sided Sound Absorptive N-40-63 | SF |
| 531.0300.S.0004 | Noise Barriers Double-Sided Sound Absorptive N-40-64 | SF |
| 531.0300.S.0006 | Noise Barriers Double-Sided Sound Absorptive N-40-66 | SF |
| 531.0300.S.0007 | Noise Barriers Double-Sided Sound Absorptive N-40-67 | SF |
| 531.0300.S.0008 | Noise Barriers Double-Sided Sound Absorptive N-40-76 | SF |
| 531.0300.S.0009 | Noise Barriers Double-Sided Sound Absorptive N-40-77 | SF |
| 531.0300.S.0010 | Noise Barriers Double-Sided Sound Absorptive N-40-78 | SF |
| 531.0300.S.0011 | Noise Barriers Double-Sided Sound Absorptive N-40-79 | SF |

Payment is full compensation for providing noise barrier including coloring and aesthetic treatment on panels; for preparing the design drawings, calculations and handling plan; for furnishing and delivering sample and test panels; for testing noise barrier materials; for excavation, preparing the site, constructing foundations, erecting posts and panels, and disposing of waste materials. The department will pay up to 50 percent of the contract value of the work completed until meeting all of the requirements of the contract specification, including testing. The department will make final payments upon acceptance of all work required.

## 95. Driven Piles Using Pile Dynamic Analyzer.

*Where indicated in the structure plans, replace standard spec. 550.3.6 with the following:*

**550.3.6 Driving Resistance**

(1) Drive piles to the depths necessary to obtain the required driving resistance per the driving resistance determination method called for in the plans.

(2) Driving resistance will be developed by the engineer from Pile Dynamic Analyzer (PDA) testing performed on the designated piles at each substructure unit as shown on the plans. The driving criteria will be given as blows per foot with hammer stroke and minimum penetration of the pile or as directed by the engineer.

The PDA test piles at each substructure unit are designated on the plans and will be monitored using a PDA. Pile installation for these test piles will be controlled by the PDA testing and the engineer per the Pile Dynamic Analyzer (PDA) Testing and Restrike Special Provision within this contract.

For the PDA driving resistance determination method, pile restrikes will be required per the PDA Testing and Restrike Special Provision, or as directed by the engineer. Accommodate a time delay in the pile driving sequence as defined in the PDA Testing Special Provision to allow the engineer time to develop the production pile driving criteria.

(3) If the required driving resistance is not met at the minimum tip elevation, driving shall continue until it is achieved. If the required driving resistance is achieved above the minimum tip elevation, driving shall continue until both the minimum tip elevation and required driving resistance criteria are met. If practical pile refusal is encountered prior to the minimum tip elevation, the engineer will determine if driving can be halted.

*Where indicated in the structure plans, delete standard spec. 550.3.7.*

## 96. Concrete Barrier.

*Replace standard spec 603.5.2(1) with the following:*

Payment for the permanent barrier, fixed object protection, and transition bid items is full compensation for providing barrier or the specified transition; for excavating and backfilling for all types except roadside retaining wall; for disposing of excess material; for restoring the grade and for full depth concrete saw cuts as shown in the plans.

## 97. Storm Sewer.

*Supplement standard spec 204.3.2.2 with the following:*

Material placed within storm sewer trenches is subject to the quality control for the zone that the material is being placed and shall conform to QMP Subgrade article listed elsewhere in this special provision document.

*Supplement standard spec 204.5.1 with the following:*

QMP sampling, testing and documentation if applicable is incidental to removing storm sewer bid item and no separate payment will be made.

*Supplement standard spec 607.3.1.1 with the following:*

Two weeks prior to start of storm sewer construction, provide a shoring design and installation sequence for each location where shoring is to be used. Have a professional engineer, currently registered in the State of Wisconsin and knowledgeable of the specific site conditions and requirements, verify the adequacy of the design. Submit one electronic copy in portable document format of each shoring design, signed and sealed by the same professional engineer verifying the design, to the engineer for incorporation into the permanent project record.

*Supplement standard spec 607.3.5 with the following:*

Material placed within storm sewer trenches is subject to the quality control for the zone that the material is located in and shall conform to QMP Subgrade article listed elsewhere in this special provision document.

*Replace standard spec 607.3.5(1) with the following:*

Conform to backfill detail as shown on the plans. Backfill all trenches and excavations immediately after completing storm sewer construction per detail(s) shown on the plans. Backfill all trenches and excavations of all new storm sewer and storm sewer structures not occupied by Backfill Controlled Low Strength or backfill slurry with backfill material conforming to standard spec 209.

*Supplement standard spec 608.3 with the following:*

Place rubber gasket joints over the spigot end or tongue of the entering pipe for all round storm sewer pipes horizontal and elliptical pipes with a rise less than or equal to 40-inches. Clean the gasket and the ends of the pipe from sand and gravel. If the gasket provided is neither factory lubricated nor self-lubricating, lubricate the outside of the gasket and the inside of the bell or groove of the last pipe with an engineer - approved vegetable lubricant immediately before making the joint. Place the spigot or tongue of the pipe being laid with the gasket in place into the bell or groove end of the previously laid pipe. Set pipe

carefully to line and grade, and push or jack home. The engineer may order the use of a jack or "come-along" if deemed necessary to ensure that the joints are completely tight.

For horizontal elliptical pipe rise greater than 40-inches use mastic joint compound. Where factory lubricated rubber gasket joints are not available, clean the ends of the pipe from sand and gravel. Place engineer-approved mastic joint sealer on both the spigot and bell ends of the pipe being laid. Apply additional mastic around each joint exterior and wrap each joint with Geotextile Fabric Type DF laid flat meeting requirements of standard spec 645. Wrap each joint so that the Geotextile Fabric overlaps each joint a distance of approximately ½ of the pipe diameter.

*Replace standard spec 608.5(2) with the following:*

Payment for the Storm Sewer Pipe bid items is full compensation for providing all materials, including all special Y's, mitered sections, elbows and connections required; for all submittals; for excavating and wasting excess material, except rock excavation; for providing rubber gaskets; Lubrication of rubber gaskets; mastic joint sealer; for supporting utilities in storm sewer trench; for shoring design, providing a signed and sealed copy of the design; for installation, monitoring, and removal of shoring; for forming foundation; for laying pipe; for sealing joints and making connections to new or existing features, bedding material; for backfilling and providing backfill slurry and granular backfill material; for QMP sampling, testing and documentation; for cleaning out; and absent the pertinent contract bid items, for restoring the work site.

*Supplement standard spec 607.3 with the following:*

**607.3.8 Incorporating or Disposing of Excavated Material**

(1) Incorporate excavated material in the work to the extent practicable. Use materials with suitable engineering properties for riprap or backfill. If the contract contains the Excavation Common or Borrow bid items and embankment material is needed at the time of disposal, use the balance of the excavated material, with suitable engineering properties, in the embankment.

(2) Dispose of surplus or unsuitable material as specified in 205.3.12.

## 98. Catch Basins, Manholes, and Inlets.

Furnish Grade A concrete conforming to standard spec 501 as modified in 716.

Provide Ductile Iron Castings for Inlet Covers Type V and Inlet Covers Type 27-M Bolted conforming to ASTM A536 Grade 80-55-06.

*Supplement standard spec 611.3.1 with the following:*

Use a Grade "A" concrete for final adjustment of manhole cover. Provide a butyl rubber gasket or butyl rubber rope for joints of precast reinforced concrete manhole sections. Butyl Rubber gasket joint used for manholes conforms to 8.41.6 of the Standard

Specification for Sewer and Water Construction in Wisconsin, latest Edition. Provide non-rocking covers for all drainage structures subject to traffic loading.

Submit shop drawings for all drainage structures. For structures where WisDOT standard detail drawings are not available, provide shop drawings prepared, verified and stamped by a professional engineer currently registered in the State of Wisconsin. Submit one electronic copy of shop drawings in portable document format for engineer's review two weeks prior to start fabrication. Show clearly on shop drawings information for all pipe connections to the structure. The contractor is responsible for all errors of detailing and fabrication. The omission from the shop drawings of any pipe connection shall not relieve contractor of the responsibility of furnishing and installing such materials, even though the shop drawings may have been reviewed and accepted by the engineer.

Provide bolted covers for drainage structure cover types J Special, V and 27 M Bolted. Weld all other existing and proposed storm sewer structure covers subject to traffic loading in accordance to Welding Sewer Access Covers spec.

*Supplement standard spec 611.3.2 with the following:*

Conform to storm sewer concrete collar detail for storm sewer pipes to structure connections as shown on the plans.

*Supplement standard spec 611.3.3 with the following:*

Use monolithic concrete shimming as shown on plans for final adjustment of drainage structures located within the freeway concrete pavement, concrete shoulders, concrete curb and gutter and concrete barrier wall. If the adjustment is less than 4-inches, the engineer may choose to direct the contractor to use grade rings for adjustments for storm sewer structures outside the freeway concrete pavement and at other non-freeway locations.

*Supplement standard spec 611.3.7 with the following:*

Construct height adjustments of 4-inches or more with concrete grade rings. Never use grade rings less than 2-inches thick.

*Replace standard spec 611.5.2 (1) with the following:*

Payment for Catch Basins, Manholes, and Inlets bid items is full compensation for providing all submittals; materials, including all masonry, and concrete bricks, for Grade "A" concrete adjustments and monolithic concrete shimming; adjusting rings; conduit and sewer connections, steps, and other fittings; for providing and installing butyl rubber joints; for furnishing backfill, backfilling; all excavating, disposing of surplus material, and for cleaning out and restoring the work site; except that the department will pay for covers, including frames, grates and lids separately.

Cost of non-rocking covers for all drainage structures subject to traffic loading is incidental to new cover on proposed structure or reconstructing/adjusting manholes or inlets on existing structure.

Cost for providing bolted cover types J special, Type V and Type 27-M are considered incidental to cover type.

Welding covers and removing welds as directed by the engineer are paid under separate bid items.

## 99. Cover Plates Temporary, Item 611.8120.S.

**A Description**
This special provision describes furnishing, installing and removing a steel plate to cover and support asphaltic pavement and traffic loading at manholes, inlets and similar structures during milling and paving operations.

**B Materials**
Provide a 0.25-inch minimum thickness steel plate that extends to the outside edge of the existing masonry.

**C (Vacant)**

**D Measurement**
The department will measure Cover Plates Temporary as units, acceptably completed in place.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 611.8120.S | Cover Plates Temporary | Each |

Payment is full compensation for furnishing, installing, and removing the cover plates.

The steel plates shall become the property of the contractor when no longer needed in the contract work.
611-006 (20030820)

## 100. Pipe Grates, Item 611.9800.S.

**A Description**
This special provision describes furnishing and installing pipe grates on the ends of pipes as shown in the plans, and as hereinafter provided.

**B Materials**
Furnish steel conforming to the requirements of standard spec 506.2.2.1. Furnish steel pipe conforming to the requirements of standard spec 506.2.3.6.

Furnish pipe grates galvanized according to ASTM A123.

Furnish angles and brackets galvanized according to ASTM A123.

Furnish required hardware galvanized according to ASTM A153.

**C Construction**
Repair pipes, rods, angles and brackets on which the galvanized coating has been damaged in accordance to the requirements of AASHTO M36M.

**D Measurement**
The department will measure Pipe Grates in units of work, where one unit is one grate, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 611.9800.S | Pipe Grates | Each |

Payment is full compensation for furnishing and installing all materials; and for drilling and connecting grates to pipes.
611-010 (20030820)

## 101. Fence Safety, Item 616.0700.S.

**A Description**
This special provision describes furnishing and installing a plastic fence at locations shown on the plans and as hereinafter provided.

**B Materials**
Furnish notched conventional metal "T" or "U" shaped fence posts.

Furnish fence fabric meeting the following requirements.

| | |
|---|---|
| Color: | International orange (UV stabilized) |
| Roll Height: | 4 feet |
| Mesh Opening: | 1 inch min to 3 inch max |
| Resin/Construction: | High density polyethylene mesh |
| Service Temperature: | -60° F to 200° (ASTM D648) |
| Tensile Yield: | Avg. 2000 lb per 4 ft. width (ASTM D638) |
| Ultimate Tensile Strength: | Avg. 3000 lb per 4 ft. width (ASTM D638) |
| Elongation at Break (%): | Greater than 100% (ASTM D638) |
| Chemical Resistance: | Inert to most chemicals and acids |

**C Construction**
Drive posts into the ground 12 to 18 inches. Space posts at 7 feet.

Use a minimum of three wire ties to secure the fence at each post. Weave tension wire through the top row of strands to provide a top stringer that prevents sagging.

Overlap two rolls at a post and secure with wire ties.

**D Measurement**
The department will measure Fence Safety by the linear foot along the base of the fence, center-to-center of posts, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 616.0700.S | Fence Safety | LF |

Payment is full compensation for furnishing and installing fence and posts; maintaining the fence and posts in satisfactory condition; and for removing and disposing of fence and posts at project completion.
616-030 (20070510)

## 102. Soil Stabilizer Type B.

*Modify the standard specs as follows:*

*Replace standard spec 628.3.12.3 (1) with the following:*

Apply soil stabilizer with conventional hydraulic seeding equipment or as approved by the engineer. Apply the materials at the manufacturer's recommended rate unless the engineer directs otherwise.

## 103. Seeding.

*Supplement standard spec 630.3.3 with the following:*

This work includes seeding turf grass and providing proper care of all newly seeded areas for a period of two growing seasons.

Proper care of seeded areas consists of weeding, fertilizing seed mixture areas, watering, repair of eroded areas, repair of mulch or erosion mats, mowing grass once it reaches a height of 6-7 inches.

Weeding consists of physically or chemically removing large sized (over 12" tall) weeds throughout the first growing season. Chemical removal shall consist of spot applications of a Glyphosate with a surfactant during the first year of maintenance.

Confine the overspray to an area less than 2 feet in diameter. Mark the overspray area and return in one week to reseed and water. Seed mix and application rate shall be the same as the original seeding.

Comply with all federal and state laws regarding safety, handling, applying and disposal of materials and/or containers.

During the spring of the second season apply a liquid fertilizer-herbicide combination (weed and feed) when grass and weeds are actively growing to seed mixture areas. Apply when temperatures are between 55 and 75 degrees. Do not apply when wind speeds are greater than 5 mph to avoid overspray onto adjoining properties.

Place notice markers in the treated turf areas indicating that a fertilizer-herbicide has been applied and the date applied.

Water seeded areas sufficiently to maintain the soil moisture at a pre-determined level set by the engineer. Moisture level shall be measured by an electronic soil moisture gauge. Contractor to provide their own moisture gauge.

Engineer's and contractor's moisture shall be calibrated with each other. Contractor shall provide a chart of the two meter's corresponding numbers after calibration.

Inspect seeded areas after periods of rain. Report any erosion areas to the engineer and make the necessary clean-up of deposited soil (due the erosion), fill eroded areas to match surrounding grades, seed and mulch repaired areas.

Perform maintenance site visit requirements to the satisfaction of the engineer a minimum of once every two weeks for the months of May through October.

Notify the engineer at least two days before making a maintenance site visit.

Submit a written report to the engineer after each maintenance site visit. Ensure that the report documents the work performed during each visit; the number and location of bare spots, the amount of seed and mulch applied; and other information the engineer deems appropriate.

Mow grass once it has reached a height of 6-7 inches. Mow to a height of 4 inches. Repeat mowing when grass for the duration of the maintenance period.

Grass seeding in healthy condition at the end of the second growing season must cover 95% or greater, of the total seeded area.

One month prior to the end of the applicable turf seeding establishment period, the engineer will make a final inspection and accept or reject seeded areas not meeting coverage requirements.

Payment shall be made after contractor addresses all seeding and maintenance issues to the satisfaction of the engineer.

Comply with all federal and state laws regarding safety, handling, applying and disposal of materials and containers.

Water seeded areas sufficiently to keep the soil moisture at a pre-determined level set by the engineer. Measure moisture levels with an electronic soil moisture gauge. Contractor to provide their own moisture gauge.

Engineer's and contractor's moisture shall be calibrated with each other. Provide a chart of the two meter's corresponding numbers after calibration.

Inspect seeded areas after periods of rain. Report any erosion areas to the engineer and make the necessary clean-up of deposited soil (due the erosion), fill eroded areas to match surrounding grades, seed and mulch repaired areas.

Perform maintenance site visit requirements to the satisfaction of the engineer a minimum of once every two weeks for the months of May through October.

Notify the engineer at least two days before making a maintenance site visit.

Submit a written report to the engineer after each maintenance site visit. Ensure that the report documents the work performed during the care cycle; the number and location of bare spots, the amount of seed and mulch applied; and other information the engineer deems appropriate.

## 104. Furnishing and Planting Plant Materials.

*Add the following to standard spec 632.2.2.1 (1):*

All plants shall be grown within the states of Wisconsin, Minnesota, Michigan, parts of northern Illinois northern Iowa, or northern Indiana located within Zone 5 of the "Plant Hardiness Zone Map" produced by the United States Department of Agriculture, Miscellaneous Publication No. 1475, issued January, 2012.

## 105. Landscape Planting Surveillance and Care Cycles.

*Modify standard spec 632.3.19.2 to include the following:*

If the care specialist fails to perform any of the required care-cycles as specified in standard spec 632.3.19.1, the department will assess damages in the amount of $500 per day to cover the cost of performing the work with other forces.

## 106. Sign Supports Concrete Masonry.

*Add the following to standard spec 636.3.2:*

(3) Drill or excavate and maintain a stable open excavation for subsequent installation of drilled footings for sign structure foundations as shown in the plans. The subsurface conditions vary across the project site and are not necessarily the same at each sign structure foundation in the project. Anticipate the possibility of encountering randomly interlaced seams of loose, permeable sand or gravel of substantial thickness situated within glacial clays and till deposits; saturated soils; ground water; isolated cobbles or boulders; and nested cobbles and boulders at any sign structure foundation when selecting equipment and methods for drilling or otherwise excavating. Partial or full depth temporary casing may be required to maintain the stability of the excavation prior to placement of reinforcement and filling the excavation with concrete.

It is strongly advised to obtain and review the Geotechnical Exploration and Foundation Evaluation Reports for the sign structures and as well as nearby structures to the sign structure foundation being constructed. See article "Geotechnical Investigation Information" in these special provisions for information on obtaining geotechnical reports.

(4) Obstructions are defined as man-made objects that when encountered, stop or significantly impede downward progress of the excavation to less than 12-inches for 60 minutes or longer using conventional excavation techniques or augers operating at normal power, torque and downward thrust. Obstructions include man-made objects and may include, but are not limited to old concrete foundations, piling, abandoned utilities or buried pavements. Obstructions are further classified as "known obstructions" which are identified on the plans, and "unknown obstructions" that may be encountered but are not identified on the plans.

Employ special tools and/or procedures as necessary when obstructions are encountered and the contractor cannot advance the excavation more than 12-inches in 60 minutes using conventional earth augers operating at normal power, torque, and down thrust. Clear the obstructions in such a manner so as not to compromise the sidewall integrity or stability of the drilled, open hole. Special procedures and tools that may be required include, but are not limited to; chisels, breakers, core barrels, air hammer tools, and hand excavation. Other methods for obstruction removal such as temporary casing or hole diameter increase can be employed to aid in the removal if acceptable to the engineer. Blasting is not permitted.

Natural deposits, including boulders, cobbles, nested cobbles and other deposits may be encountered that impede the excavation to less than 12-inches for 60 minutes or longer as noted above for obstructions. Natural deposits, regardless of makeup, depth, configuration, and consistency are not classified as obstructions as defined in this special provision or in the special provision Obstructions Sign Supports Concrete Masonry included in this contract.

*Add the following to standard spec 636.3.3:*

(8) For drilled foundations, no more than 3 inches of standing water is permitted in the bottom of the drilled excavation immediately prior to placing concrete masonry in the excavation.

*Replace standard spec 636.5.2(1) with the following:*

Payment for Sign Supports Concrete Masonry is full compensation for providing, transporting, placing and curing the concrete; for providing and removing casing if applicable; for providing required ground rods; for furnishing all required excavating; for clearing natural and known man-made obstructions; for placing post stubs or anchor bolts, and for providing and placing electrical conduit if required; for pumping of ground water seepage if applicable; for cleaning-up, repairing damage, and for disposing of excavation and surplus materials.

Removal of unknown man-made subsurface obstructions for Sign Supports Concrete Masonry will be measured and paid for separately under the bid item, Obstructions Sign Supports Concrete Masonry included in the contract.

## 107. Signs Type I and II.

Furnish and install new mounting brackets per approved product list for type II signs on overhead sign supports incidental to sign. For type II signs on sign bridges use aluminum vertical support beams noted above incidental to sign. New mounting brackets are incidental to the sign being installed.

*Modify standard spec 637.2.4 with the following:*

Use stainless steel bolts, washers and nuts for type I and type II signs mounted on sign bridges or type I signs mounted on overhead sign supports. Use clips on every joint for Sign Plate A 4-6 when mounted on a sign bridge or overhead sign support. Inspect installation of clips and assure bolts and nuts are tightened to manufacturers recommended torque values.

Use aluminum vertical sign support beams that have a 5-inch wide flange and weigh 3.7 pounds per foot, if the L-brackets are 4 inches wide then use 4 inch wide flange beams weighing 3.06 pounds per foot. Contractor shall measure the width of the L-brackets on existing structures of determine the width needed for sign support beams

Use beams a minimum of 6 feet in length or equal to the height of the sign to be supported, whichever is greater. Use U-bolts that are made of stainless steel, 1/2 inch diameter and of the proper size to fit the truss cords of each sign bridge. Install vertical sign support beams on each sign and use new U-bolts to attach each beam to the top and bottom cord of the sign bridge truss.

For type II signs on overhead sign supports follow the approved product list for mounting brackets.

*Replace standard spec 637.2.4.1(2)2 with the following:*

Clips may be either stainless steel or ASTM B 108, aluminum alloy, 356.0-T6.

*Append standard spec 637.3.2.1(3) with the following:*

Provide the engineer with 3 copies of drawings of the signs proposed to be furnished under this contract for approval.

*Append standard spec 637.3.3.2(2) with the following:*

Install Type I Signs at the offset stated in the plan, which shall be the clear distance between the edge of mainline pavement right edgeline and the near edge of the sign.

*Append standard spec 637.3.3.3(3) with the following:*

Furnish and install new aluminum vertical sign support beams on each sign and new U-bolts to attach each beam to the top and bottom cord of the sign bridge truss for Type I or Type II Signs and Type I signs on overhead sign supports incidental to sign. New I-beams are incidental to the sign being installed.
637-SER1 (20120401)

## 108. Field Facilities.

*Replace standard spec 642 with the following:*

The department has procured its own Field Facilities located at 2424 S. 102nd Street; West Allis, WI 53227.
SEF-ZOO IC 12_0723

## 109. Traffic Control.

The work under this item shall be in accordance to the pertinent requirements of standard spec 643, as shown on the plans, or as approved by the engineer, except as hereinafter set forth.

Place traffic control devices for work in the proper location before operations proceed. Traffic Control is subject to change at the direction of the engineer in the event of an emergency.

Provide the Milwaukee County Sheriff's Department, Waukesha County Sheriff's Department, City of Milwaukee Police Department, City of West Allis Police Department, City of Wauwatosa Police Department, Village of Hales Corners Police Department, Wisconsin State Patrol, the Statewide Traffic Operations Center and the engineer a current

telephone number with which the contractor or his representative can be contacted during non-working hours in the event a traffic control safety hazard develops.

Do not park or store equipment, vehicles, or construction materials within 30 feet of the edge of freeway traffic lanes without barrier separation for any roadway carrying freeway traffic; or within 20 feet off the edge of a freeway service interchange ramp during any time except as approved by the engineer. At such locations, the materials and equipment involved shall not constitute a hazard to the traveling public.

Do not store materials, equipment, or park vehicles within 4 feet of barrier wall that has not been pinned.

Do not park personal vehicles within the access control limits of the freeway. Do not cross live freeway traffic lanes with equipment or vehicles.

Yield to all through traffic at all locations. Equip the top of all contractor and personal vehicles and equipment operating in live traffic lanes with a hazard identification beam (flashing yellow signal light) that is visible from 360 degrees. Operate the flashing yellow beam only when merging or exiting live traffic lanes or when parked or operating on shoulders.

Do not use flag persons to direct, control, or stop freeway or ramp traffic. Obtain approval from the engineer to use a flag person to direct, control, or stop local street traffic.

Do not disturb, remove or obliterate any traffic control signs, advisory signs, shoulder delineators, sand barrel array or beam guard in place along the traveled roadways not shown on the plans without the approval of the engineer.

## 110. Flexible Tubular Markers.

*Replace standard spec 643.2.5.2 with the following:*

Only flexible tubular markers with bases that bolt to the pavement surface shall be allowed for installations in which the flexible tubular markers will be in place during December, January, February and March. Flexible tubular markers that will be in place during these four months that attach to the pavement surface using any other means than a bolt connection will not be accepted. Provide a base designed to hold the post securely using locking pins, or other devices, to withstand a series of direct wheel impacts with speeds up to 65 mph.
SEF Rev. 14_1211

## 111. Nighttime Work Lighting-Stationary.

**A Description**
Provide portable lighting as necessary to complete nighttime work. Nighttime operations consist of work specifically scheduled to occur after sunset and before sunrise.

**B (Vacant)**

**C Construction**

**C.1 General**

This provision shall apply when providing, maintaining, moving, and removing portable light towers and equipment-mounted lighting fixtures for nighttime stationary work operations, for the duration of nighttime work on the contract.

At least 14 days prior to the nighttime work, furnish a lighting plan to the engineer for review and acceptance. Address the following in the plan:

1. Layout, including location of portable lighting – lateral placement, height, and spacing. Clearly show on the layout the location of all lights necessary for every aspect of work to be done at night.

2. Specifications, brochures, and technical data of all lighting equipment to be used.

3. The details on how the luminaires will be attached.

4. Electrical power source information.

5. Details on the louvers, shields, or methods to be employed to reduce glare.

6. Lighting calculations. Provide illumination with average to minimum uniformity ratio of 5:1 or less throughout the work area.

7. Detail information on any other auxiliary equipment.

**C.2 Portable Lighting**

Provide portable lighting that is sturdy and free standing and does not require any guy wires, braces, or any other attachments. Furnish portable lighting capable of being moved as necessary to keep up with the construction project. Position the portable lighting and trailers to minimize the risk of being impacted by traffic on the roadway or by construction traffic or equipment. Provide lightning protection for the portable lighting. Portable lighting shall withstand up to 60 mph wind velocity.

If portable generators are used as a power source, furnish adequate power to operate all required lighting equipment without any interruption during the nighttime work. Provide wiring that is weatherproof and installed according to local, state, federal (NECA and OSHA) requirements. Equip all power sources with a ground-fault circuit interrupter to prevent electrical shock.

**C.3 Light Level and Uniformity**

Position (spacing and mounting height) the luminaires to provide illumination with an average to minimum uniformity ratio of 5:1 or less throughout the work area.

Illuminate the area as necessary to incorporate construction vehicles, equipment, and personnel activities.

**C.4 Glare Control**
Design, install, and operate all lighting supplied under these specifications to minimize or avoid glare that interferes with all traffic on the roadway or that causes annoyance or discomfort for properties adjoining the roadway. Locate, aim, and adjust the luminaires to provide the adequate level of illumination and the specified uniformity in the work area without the creation of objectionable glare.

Provide louvers, shields, or visors, as needed, to reduce any objectionable levels of glare. As a minimum, ensure the following requirements are met to avoid objectionable glare on the roadways open to traffic in either direction or for adjoining properties:

1. Aim tower-mounted luminaires, either parallel or perpendicular to the roadway, so as to minimize light aimed toward approaching traffic.

2. Aim all luminaires such that the center of beam axis is no greater than 60 degrees above vertical (straight down).

If lighting does not meet above-mentioned criteria, adjust the lighting within 24 hours.

**C.5 Continuous Operation**
Provide and have available sufficient fuel, spare lamps, generators, and qualified personnel to ensure that the lights will operate continuously during nighttime operation. In the event of any failure of the lighting system, discontinue the operation until the adequate level of illumination is restored. Move and remove lighting as necessary.

**D (Vacant)**

**E Payment**
Costs for furnishing a lighting plan, and for providing, maintaining, moving, and removing portable lighting, tower mounted lighting, and equipment-mounted lighting required under this special provision are incidental to the contract.
643-010 (20100709)

## 112. Truck or Trailer-Mounted Attenuator, Item 643.1055.S.

**A Description**
(1) This special provision describes protecting work operations with a truck or trailer-mounted attenuator (TMA).

**B Materials**
(1) Furnish and maintain a TMA conforming to NCHRP Report 350 test level 3 or to MASH crashworthiness criteria. Submit written certification from the manufacturer that the host vehicle/attenuator configuration provided conforms to crashworthiness criteria. Include the federal-aid reimbursement eligibility letter with that submittal.

(2) Provide a host vehicle and mount the attenuator conforming to the attenuator manufacturer's specifications. Provide the engineer a copy of the manufacturer's specifications and installation instructions.

**C Construction**

(1) Coordinate with the engineer at least 72 hours before its intended use so the engineer can determine if the work operation requires TMA protection.

(2) Position the attenuator at a manufacturer-recommended location in advance of a stationary work operation. Position and maintain the attenuator consistently at the manufacturer-recommended distance from a mobile work operation. Ensure that an operator stays with the host vehicle while protecting a mobile work operation.

**D Measurement**

(1) The department will measure Truck or Truck-Trailer-Mounted Attenuator by the day, acceptably completed, measured to the 1/2-day based on the engineer-determined time the attenuator is required to protect work operations. The department will measure 4 or less hours per calendar day as a half day and over 4 hours as a full day.

**E Payment**

(1) The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 643.1055.S | Truck or Trailer-Mounted Attenuator | DAY |

(2) Payment is full compensation for providing the portable attenuator, host vehicle, and operator.

643-015 (20140630)

## 113. Traffic Control Detour Signs Not in Use.

*Replace standard spec 643.3.8.6(6) with the following:*

Immediately remove or cover signing when the detour is no longer in effect. When removing signs, remove all signs, posts, supports, and other potential associated hazards to the traveling public from within the right-of-way.

SEF Rev. 14_0402

## 114. Pavement Marking Grooved Wet Reflective Contrast Tape 4-Inch, Item 646.0841.S; 8-Inch, Item 646.0843.S.

**A Description**

This special provision describes furnishing, grooving and installing preformed wet reflective pavement marking contrast tape for grooved applications as shown on the plans, according to standard spec 646, and as hereinafter provided.

**B Materials**

Furnish wet reflective pavement marking contrast tape and adhesive material, per manufacturer's recommendation if required, from the department's approved products list.

Furnish a copy of the manufacturer's recommendations to the engineer before preparing the pavement marking grooves.

**C Construction**

**C.1 General**

For quality assurance, provide the engineer and the region's Marking Section evidence of manufacturer training in the proper placement and installation of pavement marking contrast tape.

Plane the grooved lines according to details in the plan and per manufacturer's recommendations. Use grooving equipment with a free-floating, independent cutting head. Plane a minimum number of passes to create a grooved surface per manufacturer's recommendations.

**C.2 Groove Depth**

Cut the groove to a depth of 120 mils ± 10 mils from the pavement surface or, if tined, from the high point of the tined surface. To measure the depth, the contractor may use a depth plate placed in the groove and a straightedge placed across the plate and groove, or the contractor may use a straightedge placed perpendicular to the groove. The department may periodically check groove depths.

**C.3 Groove Width – Longitudinal Markings**

Cut the groove one-inch wider than the width of the tape.

**C.4 Groove Position**

Position the groove edge according to plan details. Groove a minimum of 4 inches, but not greater than, 12 inches from both ends of the tape segment. Achieve straight alignment with the grooving equipment.

**C.5 Groove Cleaning**

**C.5.1 Concrete**

Cooling the cutting head with water may be necessary for some applications and equipment. If cooling water is necessary, flush the groove immediately with high-pressure water after cutting to remove any build-up of cement dust and water slurry. If this is not done, the slurry may harden in the groove.

If water is used in the grooving process, allow the groove to dry a minimum of 24 hours after groove cleaning, and prior to pavement marking application. The groove surface shall be clean and dry before applying the adhesive, and the pavement marking tape. Use a high-pressure air blower with at least 185 $ft^3$/min air flow and 120 psi air pressure to clean

the groove; use of the air blower does not decrease the amount of time required for the groove to dry.

**C.5.2 New Asphalt**
Groove pavement five or more days after paving.

Use a high-pressure air blower with at least 185 $ft^3$/min air flow and 90 psi air pressure to clean the groove.

**C.5.3 Existing Asphalt**
Check for structural integrity in supporting grooving operations. If the structural integrity of the asphalt pavement is inadequate to support grooving operations, immediately notify the engineer.

Use a high-pressure air blower with at least 185 $ft^3$/min air flow and 90 psi air pressure to clean the groove.

**C.6 Tape Application**
Apply the tape when both the air and surface temperature are 40 degrees F and rising.

Apply tape in the groove as per manufacturer's recommendations. If manufacturer's recommendations require surface preparation adhesive

1) For the Southeast Region and the ozone non-attainment Northeast Region counties of Sheboygan, Manitowoc, and Kewaunee:

    · Apply SPA-60 during May 1 to September 30, both dates inclusive due to Volatile Organic Compound Limitations..

    · Apply P-50 during October 1 to April 30, both dates inclusive. –

2) For the remainder counties:

    · Apply either adhesive.

Refer to the manufacturer's instructions for determining when the surface preparation adhesive is set.

Tamp the wet reflective pavement marking contrast tape with a tamper cart roller, with a minimum of a 200-lb load, cut to fit the groove. Tamp a minimum of three complete cycles (6 passes) with grooved modified tamper roller cart.

**D Measurement**
The department will not measure Pavement Marking Grooved Wet Reflective Contrast Tape (Width). The department will use pay plan quantity according to the Pay Plan Quantity article.

**E Payment**

The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 646.0841.S | Pavement Marking Grooved Wet Reflective Contrast Tape 4-Inch | LF |
| 646.0843.S | Pavement Marking Grooved Wet Reflective Contrast Tape 8-Inch | LF |

Payment is full compensation for cleaning and preparing the pavement surface; furnishing and installing the material; and for removing temporary pavement marking, if necessary.

## 115. Pavement Marking Grooved Wet Reflective Tape 8-Inch, Item 646.0883.S.

**A Description**

This special provision describes furnishing, grooving and installing preformed wet reflective pavement marking tape for grooved applications as shown on the plans, according to standard spec 646, and as hereinafter provided.

**B Materials**

Furnish grooved wet reflective pavement marking tape and adhesive material per manufacturer's recommendations, if required, from the department's approved products list.

Furnish a copy of the manufacturer's recommendations to the engineer before preparing the pavement marking grooves.

**C Construction**

**C.1 General**

For quality assurance, provide the engineer and the region's Marking Section evidence of manufacturer training in the proper placement and installation of pavement marking tape.

Plane the grooved lines according to details in the plan and per manufacturer's recommendations. Use grooving equipment with a free-floating, independent cutting head. Plane a minimum number of passes to create a grooved surface per manufacturer's recommendations.

**C.2 Groove Depth**

Cut the groove to a depth of 120 mils ± 10 mils from the pavement surface or, if tined, from the high point of the tined surface. To measure the depth, the contractor may use a depth plate placed in the groove and a straightedge placed across the plate and groove, or the contractor may use a straightedge placed perpendicular to the groove. The department may periodically check groove depths.

**C.3 Groove Width – Longitudinal Markings**
Cut the groove one-inch wider than the width of the tape.

**C.4 Groove Position**
Position the groove edge according to plan details. Groove a minimum of 4 inches, but not greater than, 12 inches from both ends of the tape segment. Achieve straight alignment with the grooving equipment.

**C.5 Groove Cleaning**
**C.5.1 Concrete**
Cooling the cutting head with water may be necessary for some applications and equipment. If cooling water is necessary, flush the groove immediately with high-pressure water after cutting to remove any build-up of cement dust and water slurry. If this is not done, the slurry may harden in the groove.

If water is used in the grooving process, allow the groove to dry a minimum of 24 hours after groove cleaning, and prior to pavement marking application. The groove surface shall be clean and dry before applying the adhesive, and pavement marking tape. Use a high-pressure air blower with at least 185 $ft^3$/min air flow and 120 psi air pressure to clean the groove; use of the air blower does not decrease the amount of time required for the groove to dry.

**C.5.2 New Asphalt**
Groove pavement five or more days after paving.

Use a high-pressure air blower with at least 185 $ft^3$/min air flow and 120 psi air pressure to clean the groove.

**C.5.3 Existing Asphalt**
Check for structural integrity in supporting grooving operations. If the structural integrity of the asphalt pavement is inadequate to support grooving operations, immediately notify the engineer.

Use a high-pressure air blower with at least 185 $ft^3$/min air flow and 120 psi air pressure to clean the groove.

**C.6 Tape Application**
Apply the wet reflective pavement marking tape when both the air and surface temperature are 40 degrees F and rising.

Apply tape in the groove as per manufacturer's recommendations. If manufacturer's recommendations require surface preparation adhesive

1) For the Southeast Region and the ozone non-attainment Northeast Region counties of Sheboygan, Manitowoc, and Kewaunee:

- Apply SPA-60 during May 1 to September 30, both dates inclusive due to Volatile Organic Compound Limitations.

- Apply P-50 during October 1 to April 30, both dates inclusive.

2) For the remainder counties:

- Apply either adhesive.

Refer to the manufacturer's instructions for determining when the surface preparation adhesive is set.

Tamp the wet reflective pavement marking tape with a tamper cart roller, with a minimum of a 200-lb load, cut to fit the groove. Tamp a minimum of three complete cycles (6 passes) with grooved modified tamper roller cart.

**D Measurement**
The department will not measure Pavement Marking Grooved Wet Reflective Tape (Width). The department will use pay plan quantity according to the Pay Plan Quantity article.

**E Payment**
The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 646.0883.S | Pavement Marking Grooved Wet Reflective Tape 8-Inch | LF |

Payment is full compensation for cleaning and preparing the pavement surface; furnishing and installing the material; and for removing temporary pavement marking, if necessary.

## 116. Pavement Marking Grooved Wet Reflective Epoxy 4-Inch, Item 646.2304.S.

**A Description**
This special provision describes furnishing, grooving, and installing wet reflective epoxy pavement marking as shown on the plans, in accordance to standard spec 646, and as hereinafter provided.

**B Materials**
Furnish a 20 mils application of modified epoxy binder pavement marking, Epoplex LS65, Ennis-Flint HPS-4 or Dow Poly-Carb Mark 55.4, or approved equal, in a grooved slot. Provide a double drop system of 5.3 pounds per gallon of 3M elements Series 70E wet reflective beads for white marking and 71E for yellow markings and Utah Performance beads mixture at a drop rate of 12-22 pounds per gallon.

*Replace standard spec 646.2.3 (1) with the following:*

Furnish Utah Performance beads with the following gradation:

Utah Bead Gradation

| US Mesh | Percent Passing (ASTM D1214) |
|---|---|
| 18 | 65-80 |
| 20 | |
| 25 | |
| 30 | 30-50 |
| 40 | |
| 50 | 0-5 |

Beads shall achieve a minimum of 250 mcd, initial, and 80 mcd, for white after one year from placement, per ASTM E 2177, 45 seconds after the pavement marking is wetted.

**C Construction**

**C.1 General**

For quality assurance, provide the engineer and the region's Marking Section evidence of manufacturer training in the proper placement and installation of the wet reflective epoxy/ bead marking.

Plane the grooved lines in accordance to details in the plan. Use grooving equipment with a free-floating, independent cutting or grinding head. Plane a minimum number of passes to create a smooth groove. Remove lane line and center line pavement markings during the grooving process.

**C.2 Groove Depth for Asphalt**

Cut the groove to a depth of 80 mils ±10 mils from the pavement surface. Measure depth using a straightedge placed perpendicular to the groove. The department may periodically check groove depths.

**C.3 Groove Depth for Concrete**

Cut the groove to a depth of 60 mils ±10 mils from the pavement surface or, if tined from the high point of the tined surface. Measure depth using a straightedge placed perpendicular to the groove. The department may periodically check groove depths.

**C.4 Groove Width – Longitudinal Markings**

Cut the groove 1inch wider than the width of the pavement marking.

**C.5 Groove Position**

Position the groove edge in accordance to Standard Detail Drawing Pavement Marking (Mainline). If necessary, groove a minimum of 4 inches, but not greater than, 12 inches from both ends of the pavement marking segment. Achieve straight alignment with the grooving equipment.

**C.6 Groove Cleaning**

**C.6.1 Concrete**

Cooling the cutting head with water may be necessary for some applications and equipment. If cooling water is necessary, flush the groove immediately with high-pressure water after cutting to remove any build-up of cement dust and water slurry. If this is not done, the slurry may harden in the groove.

If water is used in the grooving process, allow the groove to dry a minimum of 24 hours after groove cleaning, and prior to pavement marking application. The groove surface shall be clean and dry before applying the marking. Use a high-pressure air blower with at least 185 $ft^3$/min air flow and 120 psi air pressure to clean the groove; use of the air blower does not decrease the amount of time required for the groove to dry.

**C. 6.2 New Asphalt**

Groove pavement five or more days after paving.

If opening to traffic an asphalt lane that is not grooved, place temporary pavement marking. For asphalt lanes not open to traffic, temporary pavement marking is not required.

Use a high-pressure air blower with at least 185 $ft^3$/min air flow and 90 psi air pressure to clean the groove.

**C. 6.3 Existing Asphalt**

Check for structural integrity in supporting grooving operations. If the structural integrity of the asphalt pavement is inadequate to support grooving operations, immediately notify the engineer.

Use a high-pressure air blower with at least 185 $ft^3$/min air flow and 90 psi air pressure to clean the groove.

**D Measurement**

The department will not measure Pavement Marking Grooved Wet Reflective Epoxy (Width). The department will use pay plan quantity according to the Pay Plan Quantity article.

**E Payment**

The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 646.2304.S | Pavement Marking Grooved Wet Reflective Epoxy 4-Inch | LF |

Payment is full compensation for cleaning and preparing the pavement surface; furnishing and installing the epoxy, 3M elements and beads; and for removing existing or temporary marking, if necessary.

## 117. Late Season Marking Requirements.

*Replace standard spec 646.3.1.4(1) with the following:*

Do not place wet reflective contrast tape marking after November 15 and before April 15 of the following calendar year unless both air and surface temperatures are 40 degrees F and rising. If those conditions are not met, apply epoxy marking material from the department's approved products list in the exact locations the plans show for wet reflective contrast tape. Maintain that marking until April 15. Then, unless the engineer allows otherwise, completely remove while installing wet reflective contrast tape.
SEF 14_0312

## 118. Roadway Lighting Systems.

The following modifications are made to standard specifications and standard detail drawings:

*Append standard spec 651.3.1 with the following:*

Each electrical worker is responsible for his own protection from automatic switching and from switching by others. Conform to lock-out and tag-out rules that apply in the industry. Sign and date the tags and include the name of the contractor. If possible, clear lock-outs and tag-outs by the end of the work day. If not possible, notify the engineer.

The plans show required disconnections of existing lighting circuits, most in the form of abandoning existing underground conductors in place. The contractor may need to mobilize several times per each existing lighting distribution center. The contractor is expected to build these costs into the various paid items for removals and installations.

*Append standard spec 651.5 with the following:*

Work to disconnect and connect conductors will be incidental to the paid measurement of footage.

There will be no measurement for payment for abandoning conductors or removing conductors for scrap.

Work to disconnect and connect electrical system, splice through, or to connect conductors are incidental to the installation or removal of the lighting pay items included in this contract. The department will not measure conductors or conduits that have been abandoned in place or removing them for scrap. The department will allow, at the contractor’s discretion, for the salvaging of conductors to be abandoned, if possible.

*Append standard spec 652.3.1 with the following:*

Installed minimum 3-inch diameter PVC conduit elbows in a ground mounted concrete bases to accommodate Cable in Duct (CID) type cable.

*Append standard spec 652.3.1.2 with the following:*

Furnish and install an UL-listed liquidtight flexible metallic conduit transition wherever a conduit exits from below grade.

Furnish a UL-listed fitting appropriate for the purpose at each transition from one type of conduit to another type. Couplings will not be individually measured for payment.

*Append standard spec 652.3.1.4 with the following:*

Support conductors at the top of the vertical raceway or as close as practical if the vertical rise exceeds 50-feet. Provide additional supports as shown; in no case shall the distance between supports exceed that shown in Table 300.19(A) of the National Electrical Code.

*Append standard spec 655.3.1(1) and standard spec 655.3.7(3) with the following:*

Wet location splices may be allowed under the following circumstances:

- Where shown in the plans.
- Where the best available location to connect new work to existing work below grade.

Make wet location splices with an approved epoxy kit.

*Append standard spec 655.3.7(4) with the following:*

Provide an approved secondary in line 600-volt AC fuse assembly with a FNQ 5 ampere fuses in the luminaire and provide No. 12 AWG, XLP wire in the pole shaft from fuses in the luminaire to underground feeder with splice at pole base. No. 12 AWG, XLP wire will be paid separately. Fuses are included in electrical wire bid items.

Where two or more cable networks occupy the same pull box, manhole, etc., bundle and tag each circuit network (i.e. A/B/N and C/D/N) with approved all-weather tags.

At each pull point or access point, indicate the line side bundle with a lap of blue tape. *Exception:* Where the direction the bundle comes from is obvious, the lap of blue tape is not required. *Example of exception:* a bridge parapet junction box.

*Append standard spec 657.2.1(2) with the following:*

For non-breakaway poles (mounted on structure, concrete base or behind noise wall barriers without transformer base), as well as at stems of sign bridges containing electrical wires, to be double nutted and contractor to install galvanized rat screen enclosing the bottom of pole area, extra nuts and screen incidental.

*Modify standard spec 657.3.1(3) with the following:*

Use corrosion protection measures for breakaway transformer bases and aluminum light poles for installation on lighting systems.

## 119. Install Conduit Into Existing Item, Item 652.0700.S.

**A Description**
This special provision describes installing proposed conduit into an existing manhole, pull box, junction box, communication vault, or other structure.

**B Materials**
Use nonmetallic conduit, as provided and paid for under other items in this contract. Furnish backfill material, topsoil, fertilizer, seed, and mulch conforming to the requirements of pertinent provisions of the standard specifications.

**C Construction**
Expose the outside of the existing structure without disturbing existing conduits or cabling. Drill the appropriate sized hole for the entering conduit(s) at a location within the structure without disturbing the existing cabling and without hindering the installation of new cabling within the installed conduit. Fill void area between the drilled hole and conduit with an engineer-approved filling material to protect against conduit movement and entry of fill material into the structure. Tamp backfill into place.

**D Measurement**
The department will measure Install Conduit Into Existing System by the unit, acceptably installed. Up to five conduits entering a structure per entry point into the existing structure will be considered a single unit. Conduits in excess of five, or conduits entering at significantly different entry points into the existing pull box, manhole, or junction box will constitute multiple units of payment.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 652.0700.S | Install Conduit Into Existing Item | Each |

Payment is full compensation for excavating, drilling holes; furnishing and installing all materials, including bricks, coarse aggregate, sand, bedding, and backfill; for excavating and backfilling; and for furnishing and placing topsoil, fertilizer, seed, and mulch in disturbed areas; for properly disposing of surplus materials; and for making inspections.
652-070 (20100709)

## 120. Electrical Conduit.

This special provision applies only to the City of Milwaukee owned traffic signal at the intersection of W. Wisconsin Avenue and N. 95th Street.

*Append standard spec 652.3.1.1 with the following:*

Locations of the conduits are identified in the plans; however, installation will require integration with existing field conditions. Appropriate adjustment of conduit locations may be made if the field conditions are such that the pipes cannot be installed at the specified locations. Any relocation greater than five feet must be approved by the engineer.

Plan changes must be approved by the City of Milwaukee Electric Services Supervisor or Traffic Engineer. The primary contacts are Mr. Al Nichols, Traffic Operations Supervisor, (414) 286-368 office, (414) 708-5148 mobile; or Mr. Joseph Blakeman, Traffic Control Engineer III, (414) 286-8070.

Provide three sets of As-Built plan sets to City of Milwaukee Electric Services Supervisor or engineer upon completion of conduit installation.

## 121. Traffic Signals, General.

**City of Milwaukee Owned Traffic Signal**
The traffic signal at the intersections of W. Wisconsin Avenue and N. 95th Street is owned and operated by the City of Milwaukee. The City of Milwaukee is responsible for the installation of all aboveground infrastructure and cabling at this intersection.

## 122. Anchor Assemblies Light Poles on Structures, Item 657.6005.S.

**A Description**
This special provision describes furnishing and installing anchor bolt assemblies for light poles as shown on the plans, and as hereinafter provided.

**B Materials**
Furnish anchors of the size and spacing as given on the plans, and that conform to ASTM A449 or AASHTO M314 GR 55. The upper 8 inches of the bolts, nuts, and washers shall be hot-dipped galvanized in accordance to ASTM A153, Class C. Provide enlarged threads on nuts for proper fit after galvanizing.

**C Construction**
Provide two nuts and two washers per anchor bolt, and install per light standard manufacturer's recommendations.

**D Measurement**
The department will measure Anchor Assemblies Light Poles on Structures as a unit for each individual anchor bolt assembly, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 657.6005.S | Anchor Assemblies Light Poles on Structures | Each |

Payment is full compensation for furnishing and installing the anchorages.
657-060 (20100709)

## 123. Luminaires Utility LED B, Item 659.1120; Luminaires Utility LED D, Item 659.1130.

*Supplement standard spec 659.2 with the following:*

(2) The luminaire shall be equipped with a 10KV surge protection. Test surge protection in accordance to ANSI/IEEE C62.45 per ANSI/IEEE C62.42.2 scenario 1 category C high exposure 10KV/10VA waveforms.

(3) LED driver shall be a Zitanium Continuous Lumen Output (CLO) driver. Setting shall be the Light Loss Factor (LLF) as listed in the Wisconsin DOT Qualified Product List

(4) Furnish each luminaire with an ANSI C136.40 compliant, 5-prong, locking type, photo control receptacle. Furnish and install a rain tight shorting cap.

(5) Furnish shop drawings as specified in 506.3.2, except submit 5 copies with the materials list. Ensure the drawings contain sufficient detail to allow satisfactory review and show the dimensions of all equipment shown in the plans.

## 124. Ramp Closure Gates Hardwired 28-FT, Item 662.1028.S; Ramp Closure Gates Hardwired 32-FT, Item 662.1032.S; Ramp Closure Gates Hardwired 37-FT, Item 662.1037.S; Ramp Closure Gates Hardwired 40-FT, Item 662.1040.S.

### A Description

This special provision describes providing hardwired freeway on-ramp closure gates on type 5 steel luminaire poles. This special provision also describes furnishing and delivering spare gate arms and flashers.

### B Materials

#### B.1 General

Provide five user manuals and a listing of vendors and contact information for each manufactured component including flasher electrical components.

The engineer may allow alternates equal to specified manufactured components. The engineer may require plan detail modifications to accommodate alternates. The engineer may accept alternate arms or mounting adaptors only if the contractor can demonstrate that the department can easily remove and replace the arms.

**B.2 Components**

Furnish type 5 steel poles designed to carry twin 15-foot luminaire arms and conforming to standard spec 657 and with dimensions for acceptable installation of the ramp gate hardware as shown on the detail. Ensure a contiguous pole by eliminating the hand hole near base of pole, thus allowing uninhibited mounting of the gate pivot assembly.

Furnish galvanized steel nuts and bolts conforming to ASTM A307 except where designated as high strength (HS), conform to ASTM A325. For the ramp closure gate locking mechanism, furnish a handle nut to fit on a 3/4-inch.

Furnish grade A36 steel for the gate supports, gate pivot assembly, and associated hardware galvanized after fabrication by either a mechanical or hot-dip process. Grind welded connections, rough edges, and burrs smooth before galvanizing to ensure a finished appearance. Ensure that the galvanized coating conforms to ASTM A 153.

Provide aluminum/fiberglass gate arms of the nominal length the bid item indicates and conforming to plan dimensions. Cover gate arms on two sides with alternating red and white shop-applied type H reflective from the department's approved products list. Also provide a shear pin base that is the manufacturer's "permanent pivot" style. Obtain components from:

B&B Roadway
15191 Hwy 243
Russellville, AL 35654
Tel: (888) 560-2060

Gate arm: model MU605

Furnish a worm gear winch with a single line vertical lift capacity of 2000 lbs. Ensure that the winch has hardened steel gears, a handgrip, permanently lubricated bearings, a reinforced arc-welded reel assembly, and mounting plate. Ensure that the winch can be mounted to the winch mount plate shown on the construction details and the handgrip can be operated without conflict with the pole or ramp gate assembly. Furnish a 2-inch outdoor rated, rot resistant polyester strap for the connection between the worm gear winch and the gate arm pivot assembly.

Furnish hardwire power system and connections conforming to the following:

1. Cabinet
   Furnish cabinet assemblies, power wire terminal strips, and power supplies for the on-ramp closure gate systems.

   The cabinet shall be the following dimensions: 9-inches wide, 15-inches high, and 5-inches deep.

   Minimum wall thickness of the aluminum castings shall be 3/16-inch.

Cabinet body shall have a cast rain hood over the top of the door opening.

Hinges shall consist of 3/6-inch diameter pins in cast hinge bosses that allow door to swing no less than 180º when open.

Cabinet shall be capable of being field prepared for top, bottom, or rear mounting and wire entrance holes.

Set screws shall be stainless steel.

Assembly shall be water resistant by the door flange in full contact with and compressing a neoprene gasket held by an adhesive to a groove cast into the cabinet body.

The cabinets shall consist of a cabinet body, door, and latch cast from aluminum alloy 319 or approved equivalent The door lock shall be a standard police lock reinforced with a steel plat which is keyed the same as the standard traffic control cabinets. The cast shall be free of voids, pits, dents, molding sand, and excessive foundry grinding marks. All radii shall be smooth and intact. Exterior and interior surfaces shall be smooth and cosmetically acceptable, free of molding fins, cracks, and other blemishes.

The aluminum shall meet the following minimum requirements:

- Yield Strength – 18 ksi
- Tensile Strength – 27 ksi
- Brinell Hardness – 70
- Elongation (% in 2 inches) – 2

The assembly shall have an alodine conversion coating to provide corrosion resistance and a proper base for paint adhesion.

Furnish a stainless steel or anodized steel mounting adapter plate to mount the cabinet to a pole with stainless steel banding straps.

2. Power Converter
   Furnish the cabinet with a 120 VAC to 12 VDC power converter.

   Furnish the cabinet with a 10 position terminal block for the 12 VDC power distribution. Power wire terminal strips 10 position feed-through terminal blocks UL recognized for No. 22 AWG wire through No. 16 AWG wire and UL rated for 15 amps. The terminals shall be tin-plated brass with brass clips and clamps.

Furnish gate flasher assemblies conforming to the following:

1. A 2-conductor connector, rated 12 volts at 5 amps minimum.

2. A 2-amp weather resistant in-line fuse and fuse holder.

3. Wiring harness made from 6-conductor 14 AWG stranded insulated control cable.

4. A 12 V flasher controller, capable of providing LED flashers with 5% to 100% duty cycle at a one-second pulse repetition rate.

5. A 4-conductor male/female electrical connector pair, 10 amp capacity for each connection, weather resistant, and mounted to allow rapid gate arm replacement.

6. A 5-amp mercury switch with less than 3 ohms "on" resistance and a 20 to 30 degree activation angle. Mount the switch on the gate arm to activate the flashers when the gate arm is lowered more than 45 degrees from vertical.

7. Furnish red LED flashers meeting the requirements of the MUTCD and/or AREMA standards for hue and brightness.

| | |
|---|---|
| Power consumption | 0.45 amp @ 10.5 V |
| Life expectancy | 100,000 hrs |
| Directionality | 0-degree cone orthogonal to face of flasher |
| Compliance temperature | -40° C to +70° C |

Furnish electrical wires with jackets conforming to the following color scheme throughout the ramp closure gate system:

- Hot = Black or Red
- Neutral = White
- Ground = Green

Furnish a weatherproof hardened steel padlock with a minimum 2 1/4-inch shackle height and user programmable 4-digit combination.

**C Construction**

**C.1 Ramp Closure Gates**

Under the Ramp Closure Gates bid items, provide ramp closure gate at the locations the plans show. Apply marine grade anti seize compound compound to all bolt threads and to the interface between the aluminum base and steel pole. The engineer may direct adjustment of the gate arm assembly to ensure the correct vertical and angular orientation of the completed closure gate.

Install cabinet with power supply, flasher controller, and other components. Connect the 120 VAC to 12 VDC power supply to the circuit breaker in the breaker disconnect box. Connect the 120 VAC to 12 VDC power supply to the 10-position terminal block and connect the 12 VDC components to the terminal block.

Connect the 12 VDC terminal strip to the wiring harness through the female side of a 2-terminal polarized electrical connector. Connect male side of this connector to the flasher controller and the female side of a weatherproof polarized 4-conductor electrical connector.

Attach the male side of the 4 conductor electrical connector, mercury switch, wiring harness, and the three LED flasher units to the portion of the flasher assembly mounted on the breakaway portion of the gate arm. Adjust mercury switch so that as the gate arm is lowered to a maximum of 45 degrees from the vertical, the gate flasher assembly is energized, and the LEDs begin to flash. Ensure that when the gate arm is raised to a minimum of 15 degrees from vertical, the mercury switches the gate flasher assembly off.

Install structure identification plaques in the location the plan details show.

Contact Rebecca Klein (262) 822-5947, with questions regarding identification numbers

**D Measurement**

The department will measure the Ramp Closure Gates Hardwired bid items as each individual installation, acceptably completed.

The department will measure the Ramp Closure Gate Arms Stockpile bid items and Ramp Closure Gate Flashers Stockpile as each individual unit, acceptably furnished and delivered.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 662.1028.S | Ramp Closure Gates Hardwired 28-FT | Each |
| 662.1032.S | Ramp Closure Gates Hardwired 32-FT | Each |
| 662.1037.S | Ramp Closure Gates Hardwired 37-FT | Each |
| 662.1040.S | Ramp Closure Gates Hardwired 40-FT | Each |

Payment for the Ramp Closure Gate Hardwired bid items is full compensation for providing ramp closure gates including support poles; for gate arm assemblies including guides, collars, and gate arms;for cabinets, wiring, and power converters; for structure identification plaques; for gate flashers; and for padlock.

662-005 (2014630)

## 125. Intelligent Transportation Systems (ITS) – Control of Materials.

**Standard spec 106.2 – Supply Source and Quality**
*Supplement standard spec 106.2 with the following:*

The department will furnish a portion of equipment to be installed by the contractor. This department-furnished equipment includes the following:

| Department-furnished Items |
|---|
| 2070 Ramp Meter Controller |
| Dome Camera |
| Cohu Camera |
| 50-Foot Camera Pole |
| 80-Foot Camera Pole |
| Pole Mounted Camera |
| 12-Count Fiber Optic Termination Panel |
| Ethernet Video Codec |
| Ethernet Switch |
| ITS Field Cabinet |
| Loop Amplifier Card |
| Microwave Detector |
| Microwave Detector Emulator Card |

Pick-up small department-furnished equipment, such as communications devices, cameras, and controllers, from the department's Statewide Traffic Operations Center (STOC), 433 W. St. Paul Ave., Milwaukee, WI 53203 at a mutually agreed upon time during normal state office hours. Contact the department's STOC at (414) 227-2166 to coordinate pick-up of equipment.

Large department-furnished equipment, such as camera poles will be delivered by the supplier to a contractor-controlled site within Milwaukee County. Delivery will not necessarily be in a "just in time" manner. Store the equipment until field installation. Provide location details and a contact for delivery coordination upon receiving the contract's Notice to Proceed.

Transportation of the equipment between the electric shop and the field or interim location(s) shall be the responsibility of the contractor.

**Standard spec 106.3 – Approval of Materials**
*Supplement standard spec 106.3 with the following:*

**Design/Shop Drawings**
Prior to the purchase and/or fabrication of any of the components listed herein, and for any non-catalog item shown on the Material and Equipment List specified above, and no more than 30 days after notice to proceed, submit five copies of design drawings and shop drawings, as required, to the department for review. The items and the drawings that represent them shall meet the requirements of the standard specifications.

Design drawing submissions shall consist of signed and certified designs, design drawings, calculations, and material specifications for required items.

Shop drawings will be required for, but not limited to the following:

- Mounting assemblies for the vehicle speed and classification sensors, including their attachment to the structure.
- Mounting LED warning signs to the sign structure.
- Mounting detail for dynamic message signs.
- Any contractor-designed structure or foundation.

The department will complete its review of the material within 30 days from the date of receipt of the submission, unless otherwise specified. The department will advise the contractor, in writing, as to the acceptability of the material submitted. The department may determine that if no exceptions were taken for the item, it is approved, and no further action is required by the contractor; or the item may be partially or totally rejected, in which case modify and/or amend the submittal as required by the department and resubmit the item within 14 days. At this time, the review and approval cycle described above will begin again.
670-005 (20100709)

## 126. Intelligent Transportation Systems – General Requirements.

### A Description

### A.1 General

This contract includes furnishing and installing elements for an Intelligent Transportation System (ITS) in or along the existing roadway as shown on the plans.

Unusual aspects of this project include:

1. The project includes working on cables and equipment that are carrying data between roadside equipment and the department's Statewide Traffic Operations Center (STOC). Interruption of this service is not expected to perform this work. If an interruption is determined necessary, it must be done on a weekend, and must be done in a way that minimizes communication outages for the existing equipment. Notify the department's STOC at least 48 hours in advance of the planned interruption.
2. The department will furnish some of the equipment to be installed. Make a reasonable effort to discover defects in that equipment prior to installing it.

### A.2 Surge Protection

Equip every ungrounded conductor wire entering or leaving any equipment cabinet with a surge protector. For purposes of this section, multiple cabinets on a single pole or foundation are considered a single cabinet.

## B Materials

### B.1 General

Only furnish equipment and component parts for this work that are new and have high quality workmanship. All controls, indicators, and connectors shall be clearly and permanently labeled in a manner approved by the engineer. All equipment of each type shall be identical.

All electrical equipment shall conform to the standards and requirements of the Wisconsin Electrical Code, the National Electrical Manufacturers Association (NEMA), National Electric Safety Council (NESC), Underwriter's Laboratory Inc. (UL) or the Electronic Industries Association (EIA), when applicable. All materials and workmanship shall conform to the requirements of the National Electrical Code (NEC), Rural Electrification Administration (REA), Standards of the American Society for Testing and Materials (ASTM), American Association of State Highway and Transportation Officials (AASHTO), requirements of the plans these special provisions, the standard specifications, and to any other codes, standards, or ordinances that may apply. All system wiring, conduit, grounding hardware and circuit breakers shall be in conformance with the National Electrical Code. Whenever reference is made to any of the standards mentioned, the reference shall be considered to mean the code, ordinance, or standard that is in effect at the time of the bid advertisement.

### B.2 Outdoor Equipment

All conductive connectors, pins (except pins connected by soldering), and socket contacts shall be gold plated. Acrylic conformal coating shall protect each circuit board side that has conductive traces. Except for integrated circuits containing custom firmware, all components shall be soldered to the printed circuit board.

To prevent galvanic corrosion, all connections between dissimilar metals shall incorporate a means of keeping moisture out of the connection. Where the connection need not conduct electricity, interpose a non-absorbing, inert material or washer between the dissimilar metals. Use nonconductive liners and washers to insulate fasteners from dissimilar metals. Where the connection must conduct electricity, use a conductive sealant between the dissimilar metals. Alternatively, use an insulating gasket and a bond wire connecting the two metal parts.

### B.3 Custom Equipment

Equipment that is not part of the manufacturer's standard product line, or that is made or modified specifically for this project, shall conform to the following requirements:

Where practical, electronics shall be modular plug-in assemblies to facilitate maintenance. Such assemblies shall be keyed to prevent incorrect insertion of modules into sockets.

All components shall be available from multiple manufacturers as part of the manufacturers' standard product lines. All must be clearly labeled with the value, part number, tolerance, or other information sufficient to enable a technician to order an exact replacement part.

Lamps used for indicator purposes shall be light-emitting diodes.

The printed circuit boards shall be composed of "two-ounce" copper on 1/16-inch thick fiberglass epoxy or equivalent type construction. Holes that carry electrical connections from one side of the boards to the other shall be completely plated through. Multilayer printed circuit boards shall not be used. The name or reference number used for the board in the drawings and maintenance manuals supplied to the department shall be permanently affixed to each board.

All components shall be mounted so that the identifying markings are visible without moving or removing any part, if practical.

**B.3 Environmental Conditions**

Equipment shall continue to operate as specified under the following ranges of environmental conditions, except as noted in the specifications for individual pieces of equipment.

1. **Vibration and Shock:** Vehicle speed and classification sensors and any other equipment mounted atop poles or on structures shall not be impaired by the continuous vibration caused by winds (up to 90 mph with a 30 percent gust factor) and traffic.
2. **Duty Cycle:** Continuous
3. **Electromagnetic Radiation:** The equipment shall not be impaired by ambient electrical or magnetic fields, such as those caused by power lines, transformers, and motors. The equipment shall not radiate signals that adversely affect other equipment.
4. **Electrical Power:**
    a. **Operating power:** The equipment shall operate on 120-volts, 60-Hz, single-phase unless otherwise specified. It shall conform to its specified performance requirements when the input voltage varies from 89 to 135 volts and the frequency varies +3 Hz.
    b. **High frequency interference:** The equipment operation shall be unaffected by power supply voltage spikes of up to 150 volts in amplitude and 10 microseconds duration.
    c. **Line voltage transients:** The equipment operation shall be unaffected by voltage transients of plus or minus 20 percent of nominal line voltage for a maximum duration of 50 milliseconds. Equipment in the field shall meet the power service transient requirements of NEMA Standard TS-2 when connected to the surge protectors in the cabinets.

5. **Temperature and Humidity:**
    a. **Field equipment:** Equipment in the field shall meet the temperature and humidity requirements of NEMA Standard TS-2. Liquid crystal displays shall be undamaged by temperatures as high as 165 degrees F, and shall produce a usable display at temperatures up to 120 degrees F.
    b. **Equipment in Controlled Environments** shall operate normally at any combination of temperatures between 50 degrees F and 100 degrees F, and humidity's between 5 percent and 90 percent, non-condensing, and with a temperature gradient of 9 degrees F per hour.

### B.4 Patch Cables and Wiring

All cables and wiring between devices installed in a single cabinet, or in separate cabinets sharing a single concrete base, will be considered incidental to the installation of the devices and no separate payment will be made for them. It is anticipated that this will include fiber optic patch cables between termination panels and Ethernet switches, 10 / 100 MBPS Ethernet cables, RS-232 cables between individual devices and terminal servers, and power cables between individual devices and power sources within the cabinets.

### B.5 Surge Protection

Low-voltage signal pairs, including twisted pair communication cable(s) entering each cabinet shall be protected by two-stage, plug-in surge protectors and shall be installed on both ends of camera control cables. The protectors shall meet or exceed the following minimum requirements:

1. The protectors shall suppress a peak surge current of up to 10k amps.
2. The protectors shall have a response time less than one nanosecond.
3. The protector shall clamp the voltage between the two wires at a voltage that is no more than twice the peak signal voltage, and clamp the voltage between each wire and ground at 50 volts.
4. The first stage of protection shall be a three-element gas discharge tube, and the second stage shall consist of silicon clamping devices.
5. The protector shall also contain a resettable fuse (PTC) to protect against excessive current.
6. There shall be no more than two pairs per protector.
7. It shall be possible to replace the protector without using tools.

Cables carrying power to curve signs shall be protected at the cabinet by grounded metal oxide varistors of appropriate voltages. The varistors must be at least 0.8 inch in diameter.

## C Construction

### C.1 Thread Protection

Provide rust, corrosion, and anti-seize protection at all thread assemblies of metallic parts by coating (non-spray) the mating surfaces with an approved compound. Failure to use an approved compound will result in no payment for the items to which coating was to have been applied.

## C.2 Cable Installation

When installing new cables into conduits containing existing cables, remove the existing cables and reinstall the existing cables simultaneously with the new cables. Take every precaution necessary to protect the existing cables. In the event of avoidable damage to the existing cables, replace all damaged cables, in-kind, at no additional expense to the department. When cables are pulled into conduit, use a cable pulling lubricant approved by the cable manufacturer. Submit documentation supporting manufacturer approval of the lubricant to the engineer.

## C.3 Wiring

Every conductor, except a conductor contained entirely within a single piece of equipment, must terminate either in a connector or on a terminal block. Provide and install the connectors and terminal blocks where needed, without separate payment. Use approved splice kits instead of connectors and terminal blocks for underground power cable splices.

Permanently label and key connectors to preclude improper connection. Obtain prior engineer approval for the labeling method(s) prior to use.

Terminal blocks must be affixed to panels that permanently identify the block and what wire connects to each terminal. This may be accomplished by silk screening or by installing a laminated printed card under the terminal block, with the labels on portions of the card that extend beyond the block. Installation of terminal blocks by drilling holes in the exterior wall of the cabinet is not acceptable.

Use barriers to protect personnel from accidental contact with all dangerous voltages.

Do not install conductors carrying AC power in the same wiring harness as conductors carrying control or communication signals.

Arrange wiring, including fiber optic pigtails, so that any removable assembly can be removed without disturbing wiring that is not associated with the assembly being removed.

Communication and control cables may not be spliced underground, except where indicated on the plans.

Cables in the Statewide Traffic Operations Center or in communication hubs, which are not contained within a single cabinet, shall have at least 10 feet of slack.

## C.4 System Operations

If the contractor's operations unexpectedly interrupt Intelligent Transportation Systems (ITS) service, notify the engineer immediately and restore service within 24 hours. Repair all damaged facilities to the condition existing before the interruption. If service is not restored within 24 hours, the department may restore service to any operating device and deduct restoration costs from payments due the contractor.

**C.5 Surge Protection**
Arrange the equipment and cabinet wiring to minimize the distance between each conductor's point of entry and its protector. Locate the protector as far as possible from electronic equipment. Ensure that all wiring between the surge protectors and the point of entry is free from sharp bends.

**D Measurement**
No separate measurement will be made for the work described in this article.

**E Payment**
No separate payment will be made for the work described in this article. All work described in this article shall be included under the ITS items in the contract.
670-010 (20100709)

## 127. Install ITS Field Cabinet, Item 673.0200.S.

**A Description**
This special provision describes installing a state-furnished type 170, size 334 field cabinet.

**B Materials**
The department will furnish the type 170, size 334 field cabinet. Provide all necessary miscellaneous mounting hardware and internal power cables. With the field cabinet, the department will furnish cabinet bolts to anchor the cabinet to the concrete base.

**C Construction**
Install the field cabinet on a new or existing concrete base paid separately. Make all power connections to the cabinet, isolating the neutral bus from the cabinet and equipment ground.

Effectively ground all cable grounding shields and any spare or unused conductors in the field cabinet to the equipment grounding terminal strip.

**D Measurement**
The department will measure Install ITS Field Cabinet by the unit, installed according to the contract and accepted.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 673.0200.S | Install ITS Field Cabinet | Each |

Payment is full compensation for installing the state-furnished field cabinet; making all connections; and grounding as necessary.
673-005 (20100630)

## 128. Install Pole Mounted Cabinet, Item 673.0225.S.

### A Description

This special provision describes installing department furnished aluminum enclosures on poles for intelligent transportation systems equipment.

### B Materials

Use stainless steel bolts, nuts, and washers unless otherwise specified.

All conductors, terminals, and parts that could be hazardous to maintenance personnel shall be protected with suitable insulating material.

The cabinet will be equipped with service panels. Two panels shall be provided and mounted on the cabinet sidewalls. The left side panel shall be designated as "Input/Communications," and the right side panel shall be designated as the "Service Panel."

The service panel will be equipped with a four-outlet handi-box. Wire the handi-box to the series portion of the filtering surge protector.

Use metallic conduit, fitting, and adapters required from the underground conduit transition point to the cabinet as part of this item. A typical installation requires on 2-inch conduit. Use metallic conduits according to standard spec 652.

### C Construction

Fasten the field cabinet securely onto a pole. Provide bolted stainless steel connections with lock washers, locking nuts, or other engineer-approved means to prevent the connection nuts from backing off. Isolate dissimilar materials from one another using stainless steel fittings. Make all power connections to the cabinet as specified in standard spec 656.

Drill and tap the cabinet, as necessary, to mount the terminal blocks and other attachments to the services panel, to provided and entrance on the back of the cabinet for cable from the pole mounted intelligent transportation system equipment, and to mount the service panel to the cabinet as shown in the detail. Remove all sharp edges or burrs, or both, caused by cutting or drilling process. Seal all opening to prevent water from entering the cabinet. Mount the surge protector to the service panel.

Install metallic conduit on the exterior of the pole (for entrance to the cabinet from the ground) as shown in the plans, and according to the applicable requirements of standard spec 652.

### D Measurement

The department will measure Install Pole Mounted Cabinet as each individual assembly, acceptably completed

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 673.0225.S | Install Pole Mounted Cabinet | Each |

Payment is full compensation for installing the pole mounted cabinet; for making all connections conduit/wire entrances; and for furnishing all testing.
673-010 (20100630)

## 129. Install Ethernet Switch, Item 675.0400.S.

**A Description**
This special provision describes installing an Ethernet switch, and providing all necessary associated wiring.

**B Materials**
The department will furnish the Ethernet switch. Provide all necessary cables between the Ethernet switch and terminal server or other device.

**C Construction**
Install the Ethernet switch in a new or existing field cabinet. Connect it to devices as shown on the plans, or as directed by the engineer.

**D Measurement**
The department will measure Install Switch by the unit, installed in accordance to the contract, tested and accepted.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 675.0400.S | Install Ethernet Switch | Each |

Payment is full compensation for installation of the Ethernet switch; furnishing all necessary incidental hardware; and making all necessary connections.
675-040 (20100630)

## 130. Removing Advance Flasher Assemblies Type 1, Item 676.9001.S.

**A Description**
Remove advance flasher assemblies at the locations shown on the plan. Rewire and disconnect all wiring in the control cabinet as necessary and properly dispose of materials, according to the pertinent provisions of standard spec 204 and as hereinafter provided.

**B Materials**
Dispose of all materials resulting from removing the Advance Flasher Assemblies including but not limited to poles, break-a-way bases, signal assemblies, bulbs, and wire off the job site.

**C Construction**
Do not remove existing advance flasher assemblies until proper disconnects and wiring changes in the controller cabinet have been made.

Where an existing advance flasher assembly is mounted to a light pole, remove all signal hardware including wire, conduit, signal assemblies and mounts. Where existing conduit has been installed under concrete sidewalk or roadway, do not remove buried conduit unless directed otherwise by the engineer or unless it is not possible to install new wire through the existing conduit.

**D Measurement**
The department will measure Removing Advance Flasher Assemblies (Type) by the unit, acceptably removed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 676.9001.S | Removing Advance Flasher Assemblies, Type 1 | Each |

Payment is full compensation for removing advanced flasher assemblies; for rewiring, as necessary; for disconnecting wiring as necessary in the controller cabinet; and for properly disposing of all materials.

Removal of concrete bases and signs associated with this item will be measured and paid for separately.
676-900 (20100630)

## 131. Cameras.

*Replace standard spec 677.2(2) with the following:*

(2) Under the Install Camera Assembly bid item, furnish cables and connectors required to transmit video and camera control data between the camera assembly and the Ethernet switch as shown on the plans and as directed by the engineer. Cables shall conform to the following:

- Outdoor rated Category 5e, or better, UTP cable with water-blocking flooded core and UV-resistant polyethylene jacket. Cable shall consist of 4-pairs of 24 AWG solid copper conductors and shall meet the requirements of ANSI/TIA/EIA 5 68A Category 5e, CENELEC EN50173, ICEA S-90-661, and ISO/IEC 11801.

- Outdoor rated 3-conductor 16 AWG power cable in a UV resistant jacket. Cable shall be UL listed and CSA Certified for outdoor use and must meet the requirements of CSA Flexible Cord – C22.2-49, be MSHA Approved and RoHS Compliant.
- Combine camera control and video into the same composite cable, if possible.
- Integrate the camera assembly with the camera lowering system.

*Replace standard spec 677.3(15) with the following:*

(15) Use a purpose built "Pass-Fail" network cable tester to test the network cable installation for Category 5, Class E compliance. Repair any connections or cable as needed for the test to register a "Pass".

*Delete standard spec 677.3(20).*

*Replace standard spec 677.3(21) with the following:*

(21) Make all camera cable connections among the camera, camera power source, Ethernet switch, and other associated devices.

*Delete standard spec 677.3(2) 5.*

## 132. Removing 50-Foot Camera Pole, Item 677.9051.S.

**A Description**
This special provision describes removing an existing camera pole.

**B (Vacant)**

**C Construction**
Disconnect all cables, wiring and equipment that are mounted on or in the poles, and remove the pole from the concrete footing. The department will pick up any antennae, cameras, or other equipment mounted on the pole; contact maintenance staff at (414) 227-2166 at the department's Statewide Traffic Operations Center, when the material is ready to be picked up. Properly dispose of the pole, conduit, cabling, and wiring away from the project site.

**D Measurement**
The department will measure Removing 50-Foot Camera Pole by the unit, acceptably removed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 677.9051.S | Removing 50-Foot Camera Pole | Each |

Payment is full compensation for removing and disposing of the existing camera pole; disconnecting any necessary wiring; removing the equipment mounted on the poles; disposing of cabling and wiring; and transportation.
677-901 (20100630)

## 133. Removing CCTV Camera, Item 677.9200.S.

**A Description**
This special provision describes removing an existing CCTV camera from an existing camera pole as described in the plan.

**B (Vacant)**

**C Construction**
Disconnect all wiring at the control cabinet and at the top of the camera pole. Remove all fastening hardware and remove the existing camera and pan, tilt, and zoom mechanisms from the top of the pole. Salvage and store the cameras for pick up by the department; contact maintenance staff at (414) 227-2166 at the department's Statewide Traffic Operations Center to coordinate when the materials will be picked up.

The contractor may request a meeting with the engineer to assess the condition and operability of the camera prior to beginning work on removing the camera. Any damage or improper operation not noted at the meeting, or prior to the contractor starting work on the removal, will be assumed to be the fault of the contractor; repair or replace the camera at no additional cost to the department. Store the camera until the department picks up the camera.

**D Measurement**
The department will measure Removing CCTV Camera by the unit, acceptably and completely removed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 677.9200.S | Removing CCTV Camera | Each |

Payment is full compensation for removing an existing CCTV camera; for disconnecting all necessary cables and wiring; and properly storing the materials.
677-902 (20100630)

## 134. Permanent Steel Bridge Deck Forms.

### A Description

Work under this item applies to the optional use of permanent steel bridge deck forms to construct cast-in-place bridge decks on steel box girders. The permanent steel bridge deck forms may only be used in the interior bay of steel box girders as shown on the plans.

Conventional forming shall be used for deck areas indicated herein for which the use of permanent steel bridge deck forms is not allowed. If conventional forming is used over the steel box girders, all forming materials must be removed.

### B Materials

Permanent steel bridge deck forms and supports shall be fabricated from steel conforming to ASTM A 653 having a galvanized coating designation of G235 according to ASTM A 653 any grade except Grade 50, Class 3.

Attachment form hardware to be galvanized shall conform to ASTM A 123. All damaged steel form panel galvanizing shall be cleaned and recoated prior to placement of deck concrete.

### C Construction

#### C.1 General

The contractor may, at their option, use permanent steel bridge deck forms in lieu of conventional forms as the bottom forms for the cast-in-place concrete bridge decks supported on steel box girders. The use of the permanent steel bridge deck forms is subject to the limitations in this special provision and as indicated on the plans.

Transverse steel deck form panel construction joints shall be located at the bottom of a flute. Field drill ¼-inch diameter weep holes at 12-inch maximum spacing along the joint.

#### C.2 Submittals

Provide plans for each structure where the permanent steel bridges deck forms are to be used, signed and sealed by a registered professional engineer licensed in the State of Wisconsin. Submit three copies of the plans for review before ordering material and starting construction. The drawings shall show the grade of steel, the physical and section properties for all deck members, the method of support and grade adjustment, deflections, accommodation for skew and methods of end sealing against concrete or grout leaks, and the method for handling, storage and erection of the permanent steel bridge deck panels. Review and acceptance of the installation plan by the department does not relieve the contractor of responsibility for properly designing and constructing the bridge decks with the use of permanent steel bridge deck forms.

**C.3 Limitations**

The use of permanent steel bridge deck forms for bridge deck construction is not permitted as follows:

a. For bridges with steel I girder and prestressed girder superstructures.
b. The bay between the steel box girders and the deck cantilever in multi steel box girder superstructures. The deck cantilever is the deck area that extends beyond any exterior flange and web of a steel box girder and is only supported on one side by the exterior flange and web.

**C.4 Design**

(1) Physical design properties shall be computed in conformance with the requirements of the latest edition of the AISI specification for the "Design of Cold Formed Steel Structural Members."

(2) Design the forms on the basis of deadload of form, reinforcement, and plastic concrete plus 20 lb/ft$^2$ for construction loads.

(3) Do not allow deflection under the weight of the forms, reinforcement and plastic concrete to exceed 1/180 of the form span, or ½-inch, whichever is less, for form spans of 10 feet or less.

(4) Use a design span of the form equal to the clear span of the form plus 2 inches.

(5) The clearance between the surface of permanent forms and any bar reinforcement shall be not less than 1 ½-inch.

(6) Do not consider the permanent steel bridge deck form as lateral bracing for compression flanges of supporting structural members.

(7) Secure forms to the supporting members by means other than welding directly to the member. Welding to the girder flanges will not be allowed.

**D Measurement**

If used, permanent steel deck forms will not be measured separately for payment and will be considered included in the work for other items in the contract.

**E Payment**

Payment to the contractor utilizing this option is based on the contract unit bid price and plan quantity for the item HPC Masonry Structures in the contract documents and shall include all work required in this special provision.

## 135. QMP Concrete Pavement Special Requirements.

This is a specialized QMP Concrete Pavement specification modified for Zoo Interchange projects.

*Supplement standard specs 701, 710, 715 with the following:*

**A Description**

**A.1 General**

Conform to standard spec 320, 415, 416, and 501 as modified in this special provision. Apply this special provision only to the following bid items:

320.0100 - 0199 Concrete Base (inch)
320.0300 - 0399 Concrete Base HES (inch)
415.0060 - 0199 Concrete Pavement (inch)
415.1080 - 1199 Concrete Pavement HES (inch)
415.0410 Concrete Pavement Approach Slab
415.1410 Concrete Pavement Approach Slab HES
415.0310 Concrete Alley
415.1310 Concrete Alley HES
415.0210 Concrete Pavement Gaps
Concrete Pavement (inch) Special

**A.2 Quality Control Program**

**A.2.1 Control Charts**

Maintain control charts when required by the test reporting procedures. Ensure that all tests are recorded and become part of the project records. Plot required test results on the control charts. Include random, non-random, and engineer requested testing, but only include the contractor's randomly selected QC test results in the 4-point running average. Other process control or informational tests on the control charts may be plotted, but do not include them in 4-point running averages.

Post control charts in an engineer-approved location, and update daily. Ensure that the control charts include the project number, the test number, each test element, the applicable warning and control limits, the contractor's individual test results, the running average of the last 4 data points, and the engineer's verification and independent assurance test data points. Use the control charts as part of a process control system for identifying potential problems and assignable causes. Format control charts according to CMM 8.30.

**A.2.2 Department Testing**
**A.2.2.1 Verification Testing**
*Supplement standard spec 701.4.2 with the following:*

The department will perform verification testing as follows:

| | Testing Frequency Guide[1] | Sampling Material and Location | Test Method | Alternate Test Methods |
|---|---|---|---|---|
| Air content | 1 per lot | Plastic concrete, ahead or behind[2] the paver | AASHTO T 152 as modified | Hardened air content testing[2] after construction |
| 28-day compressive strength | 1 per lot | Cylinders | AASHTO T 22, T 23 and T 141 as modified | Random cores[2] after construction |

[1] The engineer may increase the frequency at start-up or as necessary to validate the quality of the materials.
[2] Evaluation of test results shall account for systematic differences in testing methods or sampling locations.

Plot verification tests on the contractor's quality control charts as specified in B.4.1. Do not include verification tests in the 4-point running average.

**A.2.2.1.1 Independent Assurance Testing**
*Supplement standard spec 701.4.3 with the following:*

Plot the independent assurance tests on the contractor's quality control charts as specified in A.2.1. Do not include independent assurance tests in the 4-point running average.

**A.2.3 Contractor Testing for Small Quantities**
*Supplement standard spec 701.2.2(3) with the following:*

1. No concrete control charts are required. Submit test results to the engineer each day as they become available. Assure that all properties are within the limits specified in the standard specifications for each sublot tested.

**B Materials**
**B.1 Class I Concrete Mixes**
**B.1.1 General**
*Supplement standard spec 501 with the following:*

Use clean, hard, durable crushed limestone with 100% fractured surfaces and free of an excess of thin or elongated pieces, frozen lumps, vegetation, deleterious substances or adherent coatings considered injurious.

Use virgin aggregates only.

**B.1.2 Aggregates**
**B.1.2.1 Fine Aggregates**
*Delete standard spec 501.2.5.3.4.*

**B.1.2.2 Course Aggregates**
**B.1.2.2.1 Deleterious Substances**
*Replace standard spec 501.2.5.4.2(1) with the following:*

The amount of deleterious substances shall not exceed the following percentages:

| DELETERIOUS SUBSTANCE | PERCENT BY WEIGHT |
|---|---|
| Shale | 1.0 |
| Coal | 1.0 |
| Clay lumps | 0.3 |
| Soft fragments | 3.0 |
| Any combination of above | 3.0 |
| Thin or elongated pieces based on a 3:1 ratio | 15.0 |
| Materials passing the No. 200 (75 µm) sieve | 1.5 |
| Chert[1] | 3.0 |

[1] Material classified lithologically as chert and having a bulk specific gravity (saturated surface-dry basis) of less than 2.45. Determine the percentage of chert by dividing the weight of chert in the sample retained on a 3/8-inch (9.5 mm) sieve by the weight of the total sample.

**B.1.2.3 Combined Aggregate Gradation**
*Replace standard spec 715.2.2(1) items 2 and 3 with the following:*

2. The percent passing the 1 inch (25 mm) sieve is less than or equal to 95.
3. The percent passing the No. 4 (4.75 mm) sieve is less than or equal to 47.

**C Construction**
**C.1 Sampling and Testing**
**C.1.1 Aggregate Testing**
**C.1.1.1 General**
*Supplement standard spec 710.5.6.1 with the following:*

Ensure that only results of randomly selected QC tests are included in the 4-point running average.

Use control limits for sieve sizes as identified in the project concrete mix report or, if the concrete mix report is not published at the time of testing, in the contractor's quality control plan. Gradation warning limits are inside the upper and lower control limit values by one percentage point for all sieves except as follows:

1. The upper warning limits for percent passing the No. 100 (150 μm) and No. 200 (75 μm) sieves are inside the control limit by 0.5 percent.
2. For sieves allowing 100 percent passing, there is no upper warning limit. For sieves with 0 percent passing, there is no lower warning limit.

**C.2 Testing and Acceptance**
**C.2.1 Class I Concrete Testing**
**C.2.1.1 Lots by Lane-Feet**
*Supplement standard spec 715.3.1.2.2 with the following:*

Lots and sublots may include concrete from more than one day of paving.

A sublot is 350 linear feet for 3-lane paving width or 2-lane plus shoulder.

Sublots at either end of a paving pass may be greater than 1000 lane-feet in size to accommodate the actual project length and staging requirements. For ease of layout, begin the first sublot at the first even station of the project. Place the resulting partial quantity into the first full sublot.

Document the locations and quantities of integral shoulders, and identify the travel lane sublot tests used for acceptance. For a shoulder pavement placed in a separate paving pass, designate separate lots and sublots.

**C.3 Strength Evaluation**
**C.3.1 Pavement**
*Replace standard spec 715.3.2.2.1 with the following:*

If a sublot strength is less than 3000 psi (17.2 MPa), the department may direct that sublot to be cored to determine its structural adequacy and whether to direct removal. Cut and test cores according to AASHTO T 24 as and where the engineer directs. Have an HTCP certified PCC technician I perform or observe the coring. Bear all coring and testing costs, fill all core holes with an approved grout, and provide traffic control during coring at no cost to the department.

The sublot pavement is conforming if the compressive strengths of all cores from the sublot are 3000 psi (17.2 MPa) or greater or the engineer does not require coring.

The sublot pavement is nonconforming if the compressive strengths of any core from the sublot is less than 3000 psi (17.2 MPa). The department may direct removal and replacement or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

**C.3.2 Acceptance**
The department will accept concrete pavement based on the contractor QC tests unless it is shown through the verification or the dispute resolution process that the contractor's tests are in error.

**D (Vacant)**

**E Payment**
**E.1 General**
*Replace standard spec 715.5.1(4) with the following:*

The department will adjust pay for each lot using percent within limits (PWL) of the 28-day sublot average strengths for that lot. The department will measure PWL relative to the lower specification limit of 4500 psi.

**E.2 Pavements**
*Replace standard specs 715.5.2(1) through 715.5.2(3) with the following:*

(1)The department will adjust pay for each lot using equation "QMP 3.03" as follows:

| **Percent Within Limits** | **Pay Adjustment***[1]* |
|---|---|
| (PWL) | (dollars per square yard) |
| ≥ 85 to 100 | 0 |
| ≥ 30 to < 85 | (1.5/55 x PWL) – (127.5/55) |
| < 30 | -1.50 |

(2) The department will not pay incentive if the lot standard deviation is greater than 400 psi.

(3) For lots with less than 4 sublots, the department will assess a disincentive based on the individual sublot average strengths. The department will reduce pay for sublots with an average strength below 4500 psi by $1.50 per square yard.
SEF Rev.14_0312

## 136. Rootstock Protection, Item SPV.0005.0001.

**A Description**
This special provision describes furnishing, installing, and maintaining rootstock protection according to the plan, and as directed by the engineer.

**B Materials**
Use posts consisting of 1 inch by 2 inch by 5 foot wooden stakes. Use cross members consisting of biodegradable, natural organic fiber bailing twine.

**C Construction**
Install rootstock protection prior to the rootstock planting. Maintain rootstock protection through the life of the contract, as needed, or within 24 hours of notification by the engineer.

Install posts at a minimum of 2 feet into the ground. Install rootstock protection in such a manner as to provide a grid-like pattern 10 feet by 20 feet through the area of the rootstock plantings. Extend the perimeter of the rootstock protection a minimum of 5 feet in all directions beyond the limits of the rootstock plantings. Attach bailing twine for cross members to all posts as shown in the plan. Attach bailing twine to the posts using knots or any other means approved by the engineer such that no more than 3 cross members may be affected if any one cross member breaks or becomes unattached. Attach bailing twine to all intermediate posts by means approved by the engineer.

**D Measurement**

The department will measure Rootstock Protection by the acre, acceptably completed within the designated limits.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0005.0001 | Rootstock Protection | Acre |

Payment is full compensation for furnishing all materials, installing all posts and cross members, disposal of surplus materials, and maintaining the Rootstock Protection through the life of the contract.

## 137. EBS Excavation, Item SPV.0035.0100.

**A Description**

This special provision describes excavating and disposing of material taken below the subgrade of future pavement structures at locations determined by the engineer.

**B Materials**

Excavate all materials below subgrade not classified as rock, stone piles and stone fences, or marsh excavation. Perform work in accordance to standard spec 205.2.2 and as hereinafter provided.

**C Construction**

Perform work in accordance to the pertinent provisions of standard spec 205.3 and as hereinafter provided.

**C.1 Yielding Subgrade**

After rough grading on all or a portion of the subgrade in cut areas and in areas requiring 2 feet or less embankment is complete and the grade is ready for blue tops, point out areas of yielding subgrade to the engineer. The engineer will evaluate the subgrade to determine if EBS Excavation is required.

If the engineer requests, provide loaded trucks and run the subgrade as the engineer directs to confirm yielding areas. Perform EBS Excavation in yielding areas as directed by the engineer.

**C.2 Excavation Below Subgrade**
Excavate materials as directed by the engineer. Remove deposits of frost-heave material, unstable silty soils, wet and unstable soil, material salvaged from old road cores in marshes, topsoil containing considerable amounts of humus or vegetable matter, rocks, or other undesirable foundation material to the depth below finished grade as the engineer directs.

Compact, or prepare otherwise as required, the existing ground within the roadway foundation as necessary to support the roadway and attain the specified density.

Dispose of all excavated materials offsite at no expense to the department. Locate disposal sites outside the right-of-way and comply with all regulations relating to disposal of solid waste. Ensure that disposal sites are neatly constructed. In performing these operations, do not create a nuisance or cause pollution or siltation of natural watercourses, streams, lakes, wetlands, or reservoirs. Obtain written permits for disposal from the owner of the property where placing the material, unless disposing of the material at a licensed waste disposal operation. Furnish permits, or copies of permits, to the engineer before disposal. Do not deposit waste in wetlands.

**C.3 Temporary Drainage**
During construction, slope and drain the excavation bottoms to prevent water accumulation. If it is necessary in the prosecution of the work to interrupt existing surface drainage, sewers, or under drainage, provide temporary drainage until completing permanent drainage work.

**D Measurement**
The department will measure EBS Excavation by the cubic yard, acceptably completed as computed using the method of average end areas, with no correction for curvature.

The department will not measure for payment materials excavated in forming benches or steps in preparing the foundation for embankments placed on slopes.

The department will not measure for payment materials excavated to remove frost from newly constructed embankments or cut subgrades unless directed by the engineer.

If undercutting designated slopes to provide for placing topsoil or salvaged topsoil, the undercut is incidental to the Topsoil or Salvaged Topsoil bid items.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0035.0100 | EBS Excavation | CY |

Payment for EBS Excavation is full compensation for performing excavation below subgrade after receiving engineer approval; for the satisfactory disposal of all resulting material offsite; for obtaining and furnishing copies of permits; for furnishing, placing, and removing all temporary drainage installations; and for providing loaded trucks and running them on the subgrade to confirm yielding areas.

The department will only pay for engineer-approved EBS Excavation to correct problems beyond the contractor's control. Work performed under standard spec 105.3 to correct unacceptable work is the contractor's responsibility.

## 138. EBS Backfill, Item SPV.0035.0101.

### A Description

This special provision describes backfilling EBS Excavation with select crushed material.

### B Materials

Furnish all materials in accordance to standard spec 312.2 and as hereinafter provided.

### C Construction

Place select crushed material where EBS Excavation was performed or as the engineer directs. Compact select crushed material using standard compaction conforming to standard spec 301.3.

### D Measurement

The department will determine weight or volume, adjust for moisture, and convert between weight and volume as specified in standard spec 301.4.

The department will measure EBS Backfill by the cubic yard, acceptably completed.

### E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0035.0101 | EBS Backfill | CY |

Payment for EBS Backfill is full compensation for providing and compacting select crushed material in areas of EBS Excavation.

The department will only pay for EBS Backfill at engineer-approved EBS Excavation locations. Work performed under standard spec 105.3 to correct unacceptable work is the contractor's responsibility.

The department will not pay for EBS Backfill to replace materials excavated to remove frost from newly constructed embankments or cut subgrades.

# 139. Excavation, Hauling, and Reuse of Solid Waste Soil, Item SPV.0035.0700.

## A General

### A.1 Description

This special provision describes excavating, relocating, and reusing solid waste soil on-site at the project.

Perform this work in accordance to the requirements of standard spec 205 and with pertinent parts of Chapters NR 700-754 of the Wisconsin Administrative Code, as supplemented herein. Per NR 718.07, a solid waste collection and transportation service-operating license is required under NR 502.06 for each vehicle used to transport impacted soil.

### A.2 Notice to the Contractor – Impacted Soil Locations

The department completed testing for soil contamination at locations within this project where excavation is required. Testing indicated that historic fill (containing foundry wastes, metals, and/or petroleum compounds, defined as "solid waste soil") is present in soil at the following locations as shown on the plans:

- Greenfield Avenue, 519G+81 to 521G+33, from 65 feet right to 140 feet right of reference line from 0 to 7 feet bgs. Excavation here is for Minor Retaining Wall R-2. Soil at this location originated from the Zoo Interchange - S. 76th St. Bridge Over I94 (Kearney St. to O'Connor St.) project and was placed here in 2014. Approximately 506 cubic yards (approximately 860 tons at an estimated 1.7 tons per cubic yard) of soil to be excavated from this area will be reused on the project as specified in Section A.3.
- IH 94 Westbound, Station 198EW+90 to 201EW+70, from 110 feet left to reference line. Soil with foundry sand and slag is present at this location. Approximately 5,617 cubic yards (approximately 9,550 tons at an estimated 1.7 tons per cubic yard) of soil and foundry waste to be excavated from this area will be reused on the project as specified in Section A.3.

If other signs of contamination are encountered at these locations or elsewhere on the project, terminate excavation activities in the area and notify the engineer.

### A.3 Reuse of Solid Waste Soils

Low-level impacted soil excavated from the locations listed in A.2 is characterized as Solid Waste Soil and shall be reused as fill at the following location:

- Ramp EN, Station 528EN+50 to 533EN+50, from 25 feet to 110 feet right of reference line.

Cap reuse soil deposited at this location with 2 feet of clay. Cover the clay with topsoil and then seed.

The clay material can be acquired on site or be furnished by the contractor from a borrow site. The contractor shall submit laboratory test results of the clay lining material from onsite or borrow source(s) documenting that the clay meets or exceeds the clay material specifications prior to the start of lining construction and prior to bringing borrow to the site.

The laboratory tests shall be conducted on clay material from on site or borrow areas at the frequency listed below and be performed in accordance to ASTM standard methods as listed below. The test results shall be submitted to the engineer for review and approval prior to construction. The following tests are required:

- A minimum of 50 percent by weight which passes the 200 sieve.
- Liquid Limit (LL): 22 percent or greater.
- Plasticity Index (PI): 12 percent or greater.

Clay not meeting these three requirements shall be removed and disposed of by the contractor without additional payment.

Soils that are reused as project fill should not contain crushed asphalt or other non-exempt solid wastes.

**A.4 Clay Cap**

The contractor shall place and compact approved clay material in four 6-inch lifts for a total compacted thickness of two feet.

Contractor shall notify the engineer at least three days prior to start of placing clay cap.

Lift thickness shall be 6 inches maximum after compaction.

Clay cap shall be a minimum of two feet thick measured perpendicular to the surface.

Compact clay to a minimum of 98% Standard Proctor Maximum Density (ASTM D698) with a sheepsfoot roller or other suitable equipment.

Placement of each lift shall not proceed until all required clay testing and documentation has been completed for the previous lift.

The moisture content of the clay during placement shall be:

- No drier than 1 % below the optimum moisture content as determined by ASTM D698.
- No wetter than 3% above the optimum moisture content as determined by ASTM D698.

Excessively dry or wet clay soil shall be properly moisture-conditioned to within the above range of values.

Provide all equipment necessary to adjust clay to the proper moisture content for compaction.

The contractor is responsible for construction of the clay cap per the plans. If the in-place clay lining fails to meet the requirements of this section, the contractor shall be responsible for the following:

- Removing and replacing or reworking any portion of the clay lining not meeting the project specifications until project specifications are met.
- The contractor shall not be compensated for removing, replacing and reworking clay lining not meeting the specification requirements.

**A.5 Testing of Constructed Soils**

As construction of the clay cap proceeds, the department will provide all required on-site quality control testing of installed materials as follows:

- Record thickness of clay lining.
- Density testing (ASTM D2922) on after the clay is placed and compacted. One test per lift (minimum) or one test for every 25,000 sq. feet of lift constructed, whichever is greater.
- HTCP certified person will perform all necessary sampling, testing, data analysis and documentation during all Pond Liner Clay placement and compaction.
- One Standard Proctor (ATM D698) for each soil type used but no less than one Proctor analysis for each 5,000 cubic yards of clay placed.
- After the lining is placed and compacted, one Shelby tube sample and bulk sample shall be retrieved and analyzed for the following:
- Moisture content.
- Grain size distribution and hydrometer analysis.
- Dry density.

The contractor shall provide the following:

- Access for on-site testing, inspection, and documentation.
- Machinery required to grade/blade density test locations.
- Machinery required to obtain undisturbed clay samples (i.e., with Shelby tubes).
- Replace and recompact clay material removed for testing purposes.

**A.6 Excavation Management Plan Approval**

The excavation management plan for this project has been designed to minimize the off-site disposal of impacted material. The excavation management plan, including these special provisions, has been developed in cooperation with the WDNR. The WDNR concurrence letter is on file at the Wisconsin Department of Transportation. For further information regarding previous investigation and remediation activities in these areas contact:

| | |
|---|---|
| Name: | Andrew Malsom |
| Address: | 141 NW Barstow Street, Waukesha, WI 53187-0798 |
| Phone: | (262) 548-6705 |
| Fax: | (262) 548-6891 |
| E-mail: | andrew.malsom@dot.wi.gov |

**A.7 Coordination**

Coordinate work under this contract with the WisDOT BTS environmental consultant. Determine the environmental consultant by contacting the following at least 30 days prior to the pre-construction conference:

| | |
|---|---|
| Name: | Bryan Bergmann, P.G. or Tyler Stapel, P.E. |
| Address: | 150 N. Patrick Blvd. Ste. 180, Brookfield, WI 53045 |
| Phone: | (262) 879-1212 |
| Fax: | (262) 879-1220 |
| E-mail: | bbergmann@trcsolutions.com; wstapel@trcsolutions.com |

The role of the environmental consultant will be limited to:

- Determining the location and limits of solid waste soil to be excavated and reused as fill based on soil analytical results from previous investigations, visual observations, and field screening of soil that is excavated;
- Documenting that activities associated with management of solid waste soil are in conformance with the solid waste management methods for this project as specified herein; and,
- Obtaining the necessary approvals for the reuse of solid waste soils from the WDNR.

Provide at least a 14-calendar day notice of the preconstruction conference date to the environmental consultant. At the preconstruction conference, provide a schedule for all excavation activities in the areas specified above to the environmental consultant. Also notify the environmental consultant at least 3 calendar days prior to commencement of excavation activities in each solid waste soil area.

Coordinate with the environmental consultant to ensure that the environmental consultant is present during excavation activities in the solid waste soil areas. Perform excavation work in each of these areas on a continuous basis until excavation work is completed.

The environmental consultant will be responsible for obtaining the necessary approvals for on-site reuse of the excavated solid waste from the WDNR. Do not transport soil offsite without prior approval from the environmental consultant.

**B (Vacant)**

**C Construction**

*Supplement standard spec 205.3 with the following:*

Control operations in the impacted areas to minimize the quantity of solid waste soil excavated and hauled for reuse within the project right-of-way.

The environmental consultant will periodically evaluate soil excavated from the area specified above based on field screening results, visual observations, and soil analytical results from previous environmental investigations. Assist the environmental consultant in collecting soil samples for evaluation using excavation equipment. The sample frequency shall be a maximum of one sample for every 20 cubic yards excavated.

Directly load and haul soils designated by the environmental consultant for reuse. Use loading and hauling practices that are appropriate to prevent any spills or releases of soil during transit. Prior to transport, sufficiently dewater soils designated for on-site reuse of free liquids.

**D Measurement**

The department will measure Excavation, Hauling, and Reuse of Solid Waste Soil in cubic yards of solid waste soil reused as documented by the engineer.

**E Payment**

The department will pay for measured quantities specified herein at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0035.0700 | Excavation, Hauling, and Reuse of Solid Waste Soil | CY |

Payment is full compensation for excavating, segregating, loading, hauling, and placing of solid waste soil; obtaining solid waste collection and transportation service operating licenses; assisting in the collection of soil samples for field evaluation; dewatering of soils prior to transport, if necessary; providing, placement, compaction and testing of clay material for clay cap, and all other necessary incidental items as specified in this special provision.

## 140. HPC Masonry Structures, Item SPV.0035.4000.

This special provision describes specialized material and construction requirements for high-performance concrete used in bridge structures. Conform to standard specs 501, 502 and 509, as modified in this special provision. This special provision also describes QMP concrete pavement and structures. Conform to standard spec 715 as modified in this special provision.

***MODIFY THE STANDARD SPECIFICATIONS AS FOLLOWS:***

**501.2.5.4.1 General**
*Replace the entire text with the following:*

(1) Use clean, hard, durable crushed limestone with 100% fractured surfaces and free of an excess of thin or elongated pieces, frozen lumps, vegetation, deleterious substances or adherent coatings considered injurious.

(2) Use virgin aggregates only.

**501.2.5.4.2 Deleterious Substances**
*Replace paragraph one with the following:*

(1) The amount of deleterious substances must not exceed the following percentages:

| DELETERIOUS SUBSTANCE | PERCENT BY WEIGHT |
|---|---|
| Shale | 1.0 |
| Coal | 1.0 |
| Clay lumps | 0.3 |
| Soft fragments | 5.0 |
| Any combination of above | 5.0 |
| Thin or elongated pieces based on a 3:1 ratio | 15.0 |
| Materials passing the No. 200 sieve | 1.5 |
| Chert[1] | 1.0 |

[1]Material classified lithologically as chert and having a bulk specific gravity (saturated surface-dry basis) of less than 2.45. Determine the percentage of chert by dividing the weight of chert in the sample retained on a 3/8-inch sieve by the weight of the total sample.

**501.2.5.4.3 Physical Properties**
*Replace paragraph one with the following:*

(1) The department will ensure that Los Angeles wear testing conforms to AASHTO T 96, soundness testing conforms to AASHTO T 104 using 5 cycles in sodium sulfate solution on aggregate retained on the No. 4 sieve, and freeze-thaw soundness testing conforms to AASHTO T 103. The percent wear must not exceed 30, the weighted soundness loss must not exceed 6 percent, and the weighted freeze-thaw average loss must not exceed 15 percent.

**501.2.9 Concrete Curing Materials**
*Replace the entire text with the following:*

(1) Furnish burlap conforming to AASHTO M 182, class 1, 2, 3 or 4.

**501.3.2.4.3.3 Extended Delivery Time**
*Delete paragraph one.*

**501.3.5.1 General**
*Replace paragraph one with the following:*

(1) Use central-mixed concrete as defined in 501.3.5.1(2) for all work under this special provision.

**501.3.5.2 Delivery**
*Replace paragraph three with the following:*

(3) Deliver and completely discharge concrete within one hour beginning when adding water to the cement, or when adding cement to the aggregates. A decrease in air temperature below 60° F or the use of department-approved retarders does not increase the discharge time.

**501.3.7.1 Slump**
*Replace the entire text with the following:*

(1) Use a 2-inch to 4-inch slump.

(2) Perform the slump tests for concrete according to AASHTO T 119.

**501.3.8.2.1 General**
*Replace paragraphs one and two with the following:*

(1) Take the following steps to ensure the quality of the concrete placed. Submit a written temperature control plan at or before the pre-pour meeting. In that plan, outline the actions the contractor will take to control concrete temperature if the concrete temperature at the point of placement exceeds 80° F. Do not place concrete without the engineer's written acceptance of that temperature control plan. Perform the work as outlined in the temperature control plan.

(2) If the concrete temperature at the point of placement exceeds 80° F, do not place concrete for items covered in this special provision.

**501.3.8.2.2 Bridge Decks**
*Replace the entire text with the following:*

(1) Do not place concrete for bridge decks when the ambient air temperature is above 80° F.

(2) For concrete placed in bridge decks, submit a written evaporation control plan at each pre-pour meeting. In that plan, outline the actions the contractor will take to maintain concrete surface evaporation at or below 0.15 pounds per square foot per hour. Do not place concrete for bridge decks without the engineer's written acceptance of that evaporation control plan. If the engineer accepts an evaporation control plan calling for ice, the department will pay $0.75 per pound for that ice. Perform the work as outlined in the evaporation control plan.

(3) If predicting a concrete surface moisture evaporation rate exceeding 0.15 pounds per square foot per hour, do not place concrete for bridge decks.

(4) Provide evaporation rate predictions to the engineer 24 hours prior to each bridge deck pour.

(5) Compute the evaporation rate from the predicted ambient conditions at the time and place of the pour using the nomograph, or computerized equivalent, specified in CMM 5.25, figure 1. Use weather information from the nearest national weather service station. The engineer will use this information to determine if the pour will proceed as scheduled.

(6) At least 8 hours before each pour, the engineer will inform the contractor in writing whether or not to proceed with the pour as scheduled. If the actual computed evaporation rate during the pour exceeds 0.15 pounds per square foot per hour, at the sole discretion of the engineer, the contractor may be allowed to implement immediate corrective action and complete the pour. If the engineer allows the placement to continue, the department will pay $0.75 per pound for the quantity of ice required to maintain the concrete surface evaporation at or below 0.15 pounds per square foot per hour.

**502.3.2.1 Detailed Plans**
*Replace the entire text with the following:*

(1) As specified in standard spec 105.2, submit four copies of detailed plans and computations for falsework, signed and sealed by a Professional Engineer registered in the State of Wisconsin, three weeks prior to erection of falsework for review and acceptance. Acceptance of the detailed plans and computations will in no way relieve the contractor of the responsibility of providing a safe and stable structure, and obtaining satisfactory results.

**502.3.5.4 Superstructures**
*Delete paragraph six.*

**502.3.7.8 Floors**

*Replace paragraph five with the following:*

(5) Set the rails or tracks that the finish machine rides on, to the required elevation; and ensure they adjust to allow for settlement under load. Support the rails or tracks outside the limits of the finished riding surface. Do not support rails or tracks on the tops of girders, or within the finished riding surface, without written permission of the engineer.

*Delete paragraph thirteen, fourteen and fifteen.*

*Add the following to the end as paragraphs nineteen, twenty, twenty-one, twenty-two, and twenty three:*

(19) Do not place bridge deck concrete more than 10 feet ahead of the finishing machine. If there is a delay of more than 10 minutes during the placement of a bridge deck, cover all concrete (unfinished and finished) with wet burlap to protect the concrete from evaporation until placement operations resume.

(20) Keep hand finishing, except for the edge of deck, to a minimum. Equip the finishing machine with a pan behind the screed. Apply micro texture using a broom or turf drag following the use of a 10-foot straight edge. Only finish by hand as necessary to close up finished concrete. Begin wet curing the deck immediately following the micro texture.

(21) For bridge decks with a design speed of 40 mph or greater, provide longitudinal grooving according to the provision included in this contract.

(22) Place HPC Masonry Structures for bridge decks during nighttime hours. Begin work no earlier than two hours before sunset and end no later than 2 hours after sunrise; unless alternate begin and end times are approved prior to the concrete placement by the engineer. To determine acceptable hours, use the sunset and sunrise times published by the National Weather Service for the proposed date of the concrete placement or as mutually agreed to by the contractor and the engineer.

(23) Provide lighting as necessary to safely perform the required work and facilitate inspection during nighttime hours. Ensure that lighting does not interfere with or impede traffic on open roadways and does not cause glare, shine or directly face the eyes of oncoming drivers. After initial setup, drive through and observe the lighted work area from each direction on the main roadway. Adjust lighting alignment if lighting causes glare, shine or directly faces the eyes of oncoming drivers

**502.3.8.1 General**
*Replace paragraph one with the following:*

(1) Maintain adequate moisture throughout the concrete mass to support hydration for at least 14 days.

**502.3.8.2.1 General**
*Replace the entire text with the following:*

(1) Wet-cure the concrete for bridge decks, structural approach slabs, sidewalks on bridges and raised medians on bridges for 14 days by use of a soaker hose system, or other engineer-approved methods. Cover the finished surface of bridge decks and overlays with one layer of wetted burlap or wetted cotton mats within 10 minutes after the finishing machine has passed. Apply the burlap/cotton gently so as to minimize marking of the fresh concrete. Keep the first layer of burlap/cotton continuously wet until the bridge deck or overlay is sufficiently hard to apply a second layer of wetted burlap/cotton. Immediately after applying the second layer of burlap/cotton, continue to keep the deck wet until placing and activating the soaker hose system. Throughout the remainder of the curing period, keep the burlap/cotton continuously wet with soaker hoses hooked up to a continuous water source. Inspect the burlap/cotton twice daily to ensure the entire surface is moist. If necessary, alter the soaker hose system as needed to ensure the entire surface is completely covered and stays moist. After 48 hours from the time of completion of the bridge deck or overlay pour, the soaker hose system and burlap/cotton may be covered with polyethylene sheeting. Provide a continuous flow of water through the soaker hose system for the entire curing period.

(2) Do not uncover any portion of the deck at any time for any reason during the first 7 days of the curing period except as permitted by the engineer.

(3) Set up and test the fogging system before each bridge deck, structural approach slab, bridge mounted sidewalk or bridge mounted raised median pour. Keep the fogging system set up and operational for the duration of the pour.

**502.3.8.2.3 Decks**
*Delete the entire text.*

**502.3.8.2.4 Parapets**
*Replace the entire text with the following:*

(1) Cure the inside and outside concrete faces and tops of railings or parapets by covering with wetted burlap immediately after form removal and surface finish application. Keep the burlap thoroughly wet for at least 7 days; or by covering for the same period with thoroughly wet polyethylene-coated burlap conforming to standard spec 502.2.6.4

(2) Secure coverings along all edges to prevent moisture loss.

**502.3.9.6 Bridge Decks**
*Replace paragraph two with the following:*

(2) Protect the underside of the deck, including the girders, for bridge deck and overlay pours by housing and heating when the national weather service forecast predicts temperatures to fall below 32° F during the cold weather protection period. Maintain a minimum temperature of 40° F in the enclosed area under the deck for the entire 14-day curing period.

**502.5.1 General**
*Replace paragraph one with the following:*

(1) The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price and incidentals necessary to complete the work under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0035.4000 | HPC Masonry Structures | CY |

Lighting for nighttime bridge deck placement is included in the item HPC Masonry Structures and will not be measured or paid for separately.

**710.5 Sampling and Testing**
*Add the following subsection:*

**710.5.7 Chloride Penetration Resistance**

(1) For each new or changed mix design, measure chloride penetration resistance according to AASHTO T 277 (Rapid Chloride Permeability Test) at a frequency of 1 test per 3 months (quarterly) of production.

(2) Strip permeability samples for AASHTO T 277 testing of their molds and wet cure to an age of 7 days in a standard moist room or water tank. After 7 days, submerge the samples in water heated to 100° F until an age of 28 days. Upon completion of the curing process, obtain one sample from each cylinder and test according to AASHTO T 277.

(3) Ensure that the initial accepted mix designs meet the chloride penetration resistance limit of 1500 coulombs based on the AASHTO T 277 Rapid Chloride Permeability test. Chloride resistance testing conducted quarterly using AASHTO T 277 Rapid Chloride Permeability Test during production will not be used for acceptance of previously accepted mixes and concrete masonry mixed and placed according to the contract requirements. For quarterly chloride resistance test results exceeding 1500 coulombs, the

department may require adjustment of the concrete mix going forward to improve the chloride penetration resistance.

**715.2.3.2 Structures**

*Replace paragraph one with the following:*

(1A) Develop and test each mix to be used for HPC Masonry Structures. Produce a laboratory trial mix for each mix, as well as a trial mix from each plant used to supply the project. Test all mixes at a department-qualified laboratory.

(1B) The laboratory trial mix data must include the results of the following tests:

1. AASHTO T 119 Slump of Hydraulic Cement Concrete.
2. AASHTO T 121 Mass per Cubic Foot, Yield
3. AASHTO T 152 Air Content.
4. AASHTO T 22 Compressive Strength.
5. AASHTO T 277 Rapid Determination of the Chloride Permeability of Concrete, using the modified curing procedure according to 710.5.7 (2) herein.
6. AASHTO T 309 Temperature.
7. Water Cement Ratio.

(1C) The 28-day compressive strength must be greater than or equal to 4000 psi. The 28-day results of the permeability test must be less than or equal to 1500 coulombs.

*Replace paragraph two with the following:*

(2) Provide a minimum cementitious content of 470 pounds per cubic yard and a maximum cementitious content of 540 pounds per cubic yard. For all superstructure and substructure concrete, unless the engineer approves otherwise in writing, conform to one of the following:

1. Use class C fly ash or grade 100 or 120 slag as a partial replacement for Portland cement. For binary mixes use 15% to 30% fly ash or 20% to 30% slag. For ternary mixes use 15% to 30% fly ash plus slag in combination. Percentages are stated as percent by weight of the total cementitious material in the mix.
2. Use a type IP or IS blended cement.

SEF Rev. 14_0731

## 141. Concrete Masonry Soldier Pile Footings, Item SPV.0035.4010.

### A Description

This special provision describes furnishing and placing concrete in predrilled holes for soldier piles and installation of soldier piles. Perform work in accordance to pertinent parts of the standard specifications, the plans, and these special provisions.

### B Materials

Provide and use concrete masonry for Concrete Masonry Soldier Pile Footings conforming to grade A or grade A-FA as specified in standard spec 501. All concrete masonry for Concrete Masonry Soldier Pile Footings is subject to the QMP requirements for Class II Ancillary Concrete. Perform QMP testing in accordance to standard spec 716 for Class II Ancillary Concrete.

### C Construction

Before placing concrete masonry give the engineer sufficient notice to allow inspection of the predrilled holes, soldier piles, and casting preparations. For concrete masonry solider pile footings constructed without the use of slurry, no more than 3 inches of standing water is permitted in the bottom of the drilled hole prior to beginning solider pile installation and immediately prior to placing concrete masonry in the hole around the solider pile. If necessary, place up to 2 feet of concrete at the bottom of the hole to assist in aligning the soldier pile. Block or clamp the soldier pile in place at the ground surface before placing concrete.

For holes drilled or excavated without slurry, the department will allow the contractor to place concrete by free-falling the concrete from the ground surface down the shaft around the soldier pile. If temporary casing is used, begin placement of the concrete before removing the casing. Remove the casing while the concrete remains workable. For holes drilled or excavated using slurry, place concrete using a tremie method from the bottom of the shaft. Withdraw the tremie pipe slowly as the level of concrete rises in the shaft and never let the level of the tremie pipe outlet exceed the height of the slurry.

### D Measurement

The department will not measure Concrete Masonry Soldier Pile Footings. The department will use pay plan quantity according to the Pay Plan Quantity article. The department will only include material within the limits and in the places the plans show.

### E Payment

The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0035.4010 | Concrete Masonry Soldier Pile Footings | CY |

Payment for Concrete Masonry Soldier Pile Footings is full compensation for furnishing all materials, pumping, placing, QMP testing, finishing, curing, protecting, and heating for installation of soldier piles.

# 142. Lightweight Foamed Concrete Fill Grade 1, Item SPV.0035.4020; Grade 2, Item SPV.0035.4030.

## A Description

### A.1 General

This special provision describes designing, providing and placing Lightweight Foamed Concrete Fill, hereafter referred to as LFCF material, for backfill and embankments at locations designated on the plans.

### A.2 Terms

Whenever in this article the following terms are used, the intent and meaning shall be interpreted as follows:

LFCF Manufacturer – The manufacturer of the foam agent used to make LFCF.

LFCF Installer – The subcontractor responsible for batching, and mixing the LFCF onsite, and placing the LFCF in accordance to the contract documents.

Contractor – General contractor as defined in the standard specifications.

## B Materials

### B.1 General

Furnish materials meeting the following requirements:

| | |
|---|---|
| Portland Cement and Portland Pozzolan Cement | standard spec 501.2.1 |
| Water | standard spec 501.2.4 |
| Air Entraining Admixtures | standard spec 501.2.2 |
| Water Reducing Admixtures | standard spec 501.2.3 |
| Set Retarding Admixtures | standard spec 501.2.3 |
| Curing Materials | standard spec 502.2.6 |
| Fly Ash | standard spec 501.2.6 |
| Dampproofing | standard spec 516.2.1 |

Pozzolans and admixtures (for accelerating, water reducing, retaining, improving the bond, etc.) may only be used if specifically designated and approved by the LFCF manufacturer.

### B.2 LFCF Material Specifications

The foaming agent from the selected manufacturer will produce a Lightweight Foamed Concrete Fill Material, complying with the specifications in Table 1 below.

**Table 1 – LFCF Material Requirements**

| Property | Grade 1 (Fill BelowTop 3 Feet of LFCF) | Grade 2 (Fill Within Top 3 Feet LFCF) | Test Method |
|---|---|---|---|
| Cast Density (after pumping) | 36.0 - 40.0 pcf | 44.0 - 50.0 pcf | ASTM C 796 |
| Maximum Dry Density | 34.0 pcf | 46.0 pcf | ASTM C 796 |
| Minimum Dry Density | 30.0 pcf | 40.0 pcf | ASTM C 796 |
| Unconfined Compressive Strength | 20 psi minimum at 24 hours curing<br><br>70 psi minimum at 28 days curing | 25 psi minimum at 24 hours curing<br><br>120 psi minimum at 28 days curing | ASTM C 796 |
| Freeze-Thaw Resistance – minimum cycles @ relative E = N/N ³ 70% per ASTM C666* as modified below | NA | Relative Young's Modulus, E ³ 70% at 100 cycles. | ASTM C 666* as modified below |
| Coefficient of permeability | 1 x $10^{-5}$ cm/sec 2.0 psi | 1 x $10^{-5}$ cm/sec 2.0 psi | ASTM D-96 |

**B.3 Modifications to ASTM C 666**

The ASTM C666 modifications are as follows:

a. The temperature of the center of the specimens does not have to rise from 3°F to 37°F in less than 50% of the thaw cycle. Also the temperature of the center of specimen does not have to drop from 37°F to 3°F in less than 50% of the freeze cycle.
b. The freeze-thaw cycle does not have to be completed within the 4-hour maximum time limit. A complete freeze-thaw cycle for the 30 pcf material (3°F to 37°F and 37°F to 3°F including the requirement that it be completed in 50% of the time period) is estimated to last approximately 10 hours.

**C Construction**

**C.1 Submittals**

**C.1.1 LFCF Placement Plan**

Submit a LFCF quality control and placement plan. Place the abutment backfill and embankment in accordance to the information provided in the submitted, accepted plan. No later than two weeks prior to LFCF placement, submit the plan to the engineer for review and comment. Do not begin LFCF production before the plan has been reviewed and accepted by the engineer. The submitted plan shall provide, as a minimum, the following elements:

1. An organizational chart including names, telephone numbers, current certifications and/or titles, and roles and responsibilities of all those involved with the quality control program.
2. The process of communication by which quality control information will be disseminated to the appropriate persons**,** including materials suppliers. This shall include a list of recipients, the communication means that will be used, action time frames**,** and report formats.
3. Materials list of items proposed to be provided under this section.
4. Specifications, catalog cuts, and other engineering data needed to demonstrate compliance with the specified requirements.
5. Proof of LFCF installer's compliance with the requirements in section C2, to include a list of projects with completion date, owner's name and phone number, and contact person.
6. Mix designs for the LFCF, prepared by the LFCF manufacturer or installer, showing compliance with the specified properties.
7. Certification of batch, mixing and placing equipment by the LFCF installer meeting the requirements of section C.3 hereinafter.
8. Written documentation that LFCF installer is certified by and approved by the foam agent manufacturer.
9. LFCF curing procedures.

**C.1.2 Trial Batch Design and Testing**

At least two weeks prior to placement, prepare a trial batch and submit trial batch testing results showing that the proposed LFCF material properties comply with the requirements of this specification. The accepted trial batch mix design and tested properties will become the standard of the material furnished under this contract.

**C.1.3 Quality Assurance Samples**

At least two weeks prior to placing, submit 10 each 3-inch diameter by 6-inch high cylinder samples of the as designed and tested LFCF to the department. Cover specimens after casting to prevent loss of moisture. Do not oven dry specimens. At the department's option, the samples may be tested for strength and density in accordance to the requirements of ASTM 495 and ASTM C796 to verify the submitted test results and validate the contractor's testing procedures and quality of the furnished product.

**C.2 Personnel Requirements**

The Lightweight Foamed Concrete Fill installer, hereafter referred to as the LFCF installer, shall be certified by the manufacturer of the foaming agent and regularly engaged in the production and placement of the Lightweight Foamed Concrete Fill (LFCF). This shall include the completion of lightweight foamed concrete fills having a minimum of 10,000 total cubic yards in the past 5 years. Furthermore, the material shall have been successfully applied on at least three LFCF projects, consisting of mass fills for Federal and State highways, which have performed satisfactorily for at least five years.

The LFCF installer shall be certified and approved in writing by the foam agent manufacturer. The installer's foreman shall have a minimum of 2 years experience in this work and shall have worked on at least one of the three successful LFCF projects.

The LFCF installer shall use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are familiar with the specified requirements and the methods needed for proper performance of the work noted in this specification.

The foam agent manufacturer's representative (LFCF Manufacturer) shall be experienced in the placement of LFCF and shall be on site full-time during placement.

**C.3 Equipment Requirements**

The specialized batching, mixing, and placing equipment shall be automated and certified for this purpose by the manufacturer of the LFCF material. Bulk cement shall be weighed on a scale which operates within a tolerance of one half of one percent (0.5%) per batch. Foam shall be added and mixed at the site using the aforementioned equipment. Transit mixers and volumetric batching mixers are not acceptable.

**C.4 Required Contractor Testing**

The contractor is responsible for conducting acceptance testing and providing test results to the engineer prior to and during the installation of the LFCF.

**C4.1 Cast Density of Field Installed LFCF**

Test cast density in accordance to ASTM C 796

1. Prior to placement of the initial batch, the installer shall check the density and adjust the mix as required to obtain the manufacturer's specified cast density at point of placement.
2. At hourly intervals during placement, monitor the density and adjust as necessary to maintain the specified cast density.

**C.4.2 Strength Testing**

Conduct strength testing in accordance to ASTM C 796 except do not oven dry the test specimens.

1. Furnish a sufficient quantity of molded and cured cylinders measuring 3-inches in diameter by 6-inches high for required strength tests. Provide molds, and a similar curing environment of the LFCF being tested. Prepare cylinders in accordance to ASTM C1064.
2. Provide certified strength test results to the engineer for acceptance. At a minimum, conduct a set of three strength tests at 1, 2, and 28 day intervals for each 500 cubic yards of LFCF placed and a minimum of two sets of four cylinders each per day.

**C.5 Laboratory Requirements**

Perform the LFCF compressive strength testing at a department qualified laboratory. Information on the Wisconsin Laboratory Qualification Program may be obtained from the Quality Management Section, Wisconsin department of Transportation, Bureau of Highway Construction, Truax Center, 3502 Kinsman Blvd., Madison, WI, 53704; telephone (608) 266-3246; or on the internet at: www.dot.state.wi.us. If approved by the department, the compressive testing may also be conducted at the LFCF manufacturer's facility with test results reported as noted.

**C.6 Placement**

LFCF shall be a homogeneous mixture and all materials shall be approved prior to use.

Prepare the areas to be filled in accordance to standard spec 206.3.8. Remove standing water in the test areas prior to placement of the LFCF. Ensure the LFCF remains above the water table at all times during construction.

Subgrade for LFCF fill will be prepared in accordance to standard spec 211.

Protect material before, during and after installation, and protect the work and materials of other trades. In the event of damage, immediately make replacements and repairs to the acceptance of the engineer at no additional cost to the department.

If the LFCF must be placed in freezing susceptible conditions, consult the manufacturer as to what precautions are necessary to assure installation of an acceptable LFCF. Do not place LFCF at a temperature of less than 32 degrees Fahrenheit, nor when freezing conditions are expected in less than 24 hours, unless precautions are taken to maintain temperatures above freezing. Do not place LFCF on frozen ground or material.

Cure LFCF in accordance to the accepted placement plan.

Proportion, mix, and place LFCF only using equipment approved by the manufacturer as indicated in the accepted LFCF placement plan. Once mixed, convey the LFCF concrete promptly to the location of placement without excessive handling.

Place LFCF in lifts not exceeding 24-inches in depth unless greater depths are allowed on the plans**.**

Scarify each lift before placing the next lift. Scarify each lift to a minimum depth of 12 mm (½-inch) using a hand rake or other suitable means. When LFCF is used as backfill within MSE wall anchor zones, take special care when scarifying to not disturb the alignment of or physically damage the MSE wall reinforcing strips/mesh. Scarify after sufficient curing time such that foot traffic will not excessively damage the lift surface (no greater than 6 mm (¼ inch) indentation). Remove any loose debris or material as a result of the scarification process by blowing or other suitable means before placing the next LFCF lift.

Allow a minimum of one day (24 hours) between subsequent lifts. Prior to verification of the minimum specified compressive strength by testing, additional lifts may be placed after the one day minimum at the contractor's risk. Any material that does not meet the minimum specified strength within 28 days shall be removed and replaced by the contractor at no additional cost.

Move the discharge hose(s) sufficiently to ensure level filling through the specified fill area. Uneven filling is not permitted.

Limit the area of placement to the volume that can be placed within one hour, up to the maximum 0.61 m (2 foot) lift height. Stagger placements such that the vertical joints are at least 3 m (10 feet) apart except at designated vertical slip joints.

Where indicated on the plans, form a vertical slip joint across the entire width of LFCF embankments. The slip joint shall consist of a cold-formed joint in the LFCF, created by placing the LFCF on one side of the joint against a vertical rigid form. After removal of the form, place the LFCF on the opposite side of the joint against the previously placed LFCF with a suitable bond breaker between the placements. Bond breaker shall be plastic sheeting, geotextile fabric, or other means acceptable to the engineer.

The discharge hose length shall not exceed 244 m (800 feet) in length.

Place LFCF to the limits and grades shown in the plans with top of the LFCF within $\pm$ 0.1 foot of the elevations shown on the plans. Slope the top of the LFCF as indicated on the plans to provide drainage and prevent the ponding of water on the top of the LFCF. If not achieved at the time of placement, the top slope can be achieved by cutting, grinding or excavating the cured LFCF using methods approved by the engineer provided this is done in such a manner to leave a reasonably smooth, free draining surface without damaging the integrity of the underlying LFCF that remains.

Paving machines, heavy construction equipment or other unusual loading of the LFCF shall not be permitted until it has attained the specified 28-day compressive strength and the loading is approved by the engineer.

Sawing or ripping of the LFCF for utilities, underdrain or other conflicts will be by methods approved by the engineer. Backfill such cuts and excavations into the LFCF to the original top of LFCF elevation using the same grade of LFCF material that was removed.

**C.7 Dampproofing**

Apply dampproofing conforming to standard spec 516 to the final horizontal and vertical surfaces of the LFCF material at locations designated on the plans.

**C.8 Acceptance**

Rectify any LFCF material rejected by the engineer that does not meet the minimum required material properties or is not installed in accordance to this article. Corrective measures are subject to the approval of the engineer. Accepted corrected measures will be performed by the contractor at no additional cost to the department or extension of contract time. This includes removal and replacement of rejected LFCF material not meeting the minimum material requirements or installed in accordance to this article.

**D Measurement**

The department will measure Lightweight Foamed Concrete Fill Grade 1 and Lightweight Foamed Concrete Fill Grade 2, by the cubic yard of LFCF material, acceptably placed within the limits shown on the plans in accordance to this specification. LFCF material placed outside the limits shown on the plans will not be measured for payment unless authorized in advance of placement by the engineer.

When indicated on the plans, LFCF placed as backfill within the anchor zone of Mechanically Stabilized Earth (MSE) retaining walls in lieu of granular backfill, will not be measured separately for payment, and will be included in the cost of item Wall Concrete Panel Mechanically Stabilized Earth.

**E Payment.**

The department will pay for measured quantities at the contract unit price under the following bid item

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0035.4020 | Lightweight Foamed Concrete Fill Grade 1 | CY |
| SPV.0035.4030 | Lightweight Foamed Concrete Fill Grade 2 | CY |

Payment is full compensation for preparation of written submittals; material testing; coordination and scheduling of LFCF placement; onsite LFCF Manufacturer representative, specialized equipment to mix, transport and place LFCF; providing and erecting forms; bond breakers; and for groundwater control and temporary shoring.

Dampproofing will be measured and paid for separately in accordance to standard spec 516.

## 143. Detention Basin Clay Lining, Item SPV.0035.8001.

**A Description**

This section describes undercutting, furnishing and installing clay lining to the interior surfaces of the detention basin.

**B Materials**

The clay material can be acquired on site or be furnished by the contractor from a borrow site. The contractor shall submit laboratory test results of the clay lining material from onsite or borrow source(s) documenting that the clay meets or exceeds the clay material specifications prior to the start of lining construction and prior to bringing borrow to the site. The laboratory tests shall be conducted on clay material from on site or borrow areas at the frequency listed below and be performed in accordance to ASTM standard methods as listed below. The test results shall be submitted to the engineer for review and approval prior to construction. The following tests are required:

- A minimum of 50 percent by weight which passes the 200 sieve.
- Liquid Limit (LL): 22 percent or greater.
- Plasticity Index (PI): 12 percent or greater.

Clay not meeting these three requirements shall be removed and disposed of by the contractor without additional payment.

In addition to the three above testing requirements, the contractor shall provide additional test results for any clay furnished to be used for informational purposes. These testing results are listed below.

Reference standards are listed as follows:

American Society for Testing and Materials (ASTM):

- ASTM D698 Test for Moisture-Density Relations of Soils and Soil Aggregate Mixtures Using 5.5 lb Rammer and 12 in. Drop (Standard Proctor).
- ASTM D2922 Test for Density of Soil In Place by Nuclear Method (Shallow Depth).
- ASTM D1140 Test Method for Amount of Materials in Soils Finer than the No. 200 Sieve.
- ASTM D422 Method for Particle-Size Analysis of Soils.
- ASTM D4318 Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
- ASTM D2487 Classification of Soils for Engineering Purposes.

**Table of Testing for Clay**

| Test | Number of Required Tests: One Borrow Source Only and Also For Onsite Clay | Number of Required Tests: Multiple Borrow Sources | Minimum Requirement |
|---|---|---|---|
| Grain Size Analysis | 3 (Total) | 1 test/2,500 cy or less/site[(a)] | ≥ 50% by Wt. Passing 200 Sieve |
| Hydrometer Analysis | 3 (Total) | 1 test/2,500 cy or less/site[(a)] | Info. Only |
| Atterberg Limits (ASTM D4318) | 3 (Total) | 1 test/2,500 cy or less/site[(a)] | LL ≥ 22%<br>PI ≥ 12% |
| USCS Classification (ASTM D2487) | 3 (Total) | 1 test/2,500 cy or less/site[(a)] | Info. Only |
| Standard Proctor Analysis 5-Point Curve (Minimum) (ASTM D698) | 2 (Total) | 1 test/10,000 cy or less/site[(b)] | Info. Only |
| Permeability Test (use falling head method) | 2 (Total) | 1 test/10,000 cy or less/site[(b)] | 1 x $10^{-7}$ cm/sec |

[(a)] For each clay borrow site to be used, one test shall be performed and provided to engineer for each 2,500 cubic yards or less of clay to be obtained from each of the borrow sources.

[(b)] For each clay borrow site to be used, one test shall be performed and provided to engineer for each 10,000 cubic yards or less of clay to be obtained from each of the borrow sources.

## C Construction

### C.1 Clay Lining Placement

#### C.1.1 Detention Basin Subgrade

The detention basin subgrade shall be compacted to a minimum compaction of 95 percent of Standard Proctor Maximum Density (ASTM D-698) prior to placing any required detention basin lining material.

### C.1.2 Erosion Protection

The detention basin lining shall not be placed until after all adjacent site grading has been completed and only after silt fence has been installed completely around the perimeter of the detention basin.

### C.1.3 Clay Lining

After the rough grading is complete, the contractor shall undercut, place and compact approved clay material in four 6-inch lifts for a total compacted thickness of two feet, including a height of one foot above the normal detention basin elevation.

Contractor shall notify the engineer at least three days prior to start of placing clay lining.

Lift thickness shall be 6 inches maximum after compaction.

Clay lining shall be a minimum of two feet thick measured perpendicular to the surface.

Compact clay to a minimum of 98% Standard Proctor Maximum Density (ASTM D698) with a sheepsfoot roller or other suitable equipment.

Placement of each lift shall not proceed until all required clay testing and documentation has been completed for the previous lift.

The moisture content of the clay during placement shall be:

- No drier than 1 % below the optimum moisture content as determined by ASTM D698.
- No wetter than 3% above the optimum moisture content as determined by ASTM D698.

Excessively dry or wet clay soil shall be properly moisture-conditioned to within the above range of values.

Provide all equipment necessary to adjust clay to the proper moisture content for compaction.

The maximum permeability of constructed clay lining material and tested under Section B shall be $1x10^{-7}$ cm/sec.

The contractor is responsible for construction of the clay lining per the plans. If the in-place clay lining fails to meet the requirements of this section, the contractor shall be responsible for the following:

- Removing and replacing or reworking any portion of the clay lining not meeting the project specifications until project specifications are met.
- The contractor shall not be compensated for removing, replacing and reworking clay lining not meeting the specification requirements.

**C.1.4 Testing of Constructed Soils**
As construction of the clay lining proceeds, the department will provide all required on-site quality control testing of installed materials as follows:

- Record thickness of clay lining.
- Density testing (ASTM D2922) on after the clay is placed and compacted. One (1) test per lift (minimum) or one test for every 25,000 sq. ft. of lift constructed, whichever is greater.
- HTCP certified person will perform all necessary sampling, testing, data analysis and documentation during all Pond Liner Clay placement and compaction.

- One Standard Proctor (ATM D698) for each soil type used but no less than one Proctor analysis for each 5,000 cubic yards of clay placed.
- After the lining is placed and compacted, one Shelby tube sample and bulk sample shall be retrieved and analyzed for the following:
- Grain size distribution and hydrometer analysis.
- Moisture content.
- Dry density.
- Atterberg Limits.
- Permeability.

The contractor shall provide the following:

- Access for on-site testing, inspection, and documentation.
- Machinery required to grade/blade density test locations.
- Machinery required to obtain undisturbed clay samples (i.e., with Shelby tubes).
- Replace and recompact clay material removed for testing purposes.

**C.1.5 Detention Basin Dewatering**
The contractor is responsible for the temporary lowering of the water table to 2 feet below the clay liner below the detention basin bottom during construction and testing of the detention basin as described in bid item Dewatering for Detention Basin Construction.

The pond is a wet pond.

**D Measurement**
The department will not measure Detention Basin Clay Lining. The department will use pay plan quantity according to the Pay Plan Quantity article.

**E Payment**
The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0035.8001 | Detention Basin Clay Lining | CY |

Payment is full compensation for furnishing, undercutting for clay lining, excavation, hauling, placing compacting the detention basin clay lining, and all associated testing.

## 144. Temporary Crosswalk/Sidewalk, Item SPV.0045.0100.

**A Description**

This special provision describes maintaining accessible crosswalks/sidewalks crossing the construction zone. Maintaining accessible crosswalks/sidewalks consists of maintaining a crosswalk/sidewalk on existing pavement, new pavement, or temporary surface material.

**B Materials**

Furnish a hard temporary surface material consisting of asphaltic surface temporary in accordance to standard spec 465, any grade of concrete, skid resistant steel plating, or alternative material as approved by the engineer. Gravel or base course material is not acceptable.

**C Construction**

Install, maintain, move, and remove temporary surface material at temporary crosswalk/sidewalk locations as shown on the plans and as directed by the engineer. Level and compact the surface prior to placing temporary surface material. Provide a minimum clear width of 4 feet; be located outside the immediate work area, as approved by the engineer; meeting the requirements of the current Americans with Disabilities Act Accessibility Guidelines (ADAAG). Reconstruct or relay temporary crosswalk/sidewalk when disturbed by construction operations or utility trenches.

**D Measurement**

The department will measure Temporary Crosswalk/Sidewalk by the day, acceptably completed. The measured quantity will equal the number of calendar days a crosswalk/sidewalk through the work area, as shown on the traffic control plans, is open to pedestrian traffic. A crosswalk is defined as an accessible crossing of a single leg of an intersection. A sidewalk is defined as an accessible path between two intersections. A crossing of a street with an island within the route will be considered a single crosswalk. Each day that the crosswalk/sidewalk is out of service for more than 2 hours will result in one day being deducted from the quantity measured for payment.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0045.0100 | Temporary Crosswalk/Sidewalk | Day |

Payment is full compensation for furnishing, loading, hauling; for preparing the foundation; for furnishing, placing, maintaining, and removing temporary surface material; and for reconstructing or relaying the temporary surface material.

## 145. Portable Speed Trailer, Item SPV.0045.0401.

### A Description

This special provision describes furnishing, hauling, placing, erecting, re-erecting, operating, maintaining, moving and removal of portable speed trailers during the construction of this project.

### B Materials

Furnish portable speed trailer in accordance to the pertinent requirements of standard spec 643 and the Manual on Uniform Traffic Control Devices (MUTCD), latest edition, for portable changeable message signs (PCMS).

Provide a battery powered device with a regulatory speed limit sign and a radar speed sign displaying speed in mph. The flash rate should be between 50 and 60 cycles per minute. The distance between the bottom of the display and the pavement shall be a minimum height of 5 feet, measured vertically from the bottom of the sign to the elevation of the near edge of the pavement.

### C Construction

Furnish, haul, place, erect, re-erect, operate, maintain, move, and remove devices at locations as shown on the plans and as directed by the engineer.

Coordinate the placement and duration of these devices with the engineer at least 24 hours before its intended use and accommodate within the project. Provide an area to park the devices that is still visible to traffic.

Space five traffic control drums at ten foot intervals as needed in front of the portable speed trailer.

Move devices not performing as intended to the satisfaction of the engineer within 24 hours of notification.

### D Measurement

The department will measure Portable Speed Trailer by the day, acceptably completed. For this special provision, the number of days measured is defined as the number of calendar days that the portable speed trailer is used in moving operations or short-term stationary work. A calendar day begins with each deployment within a defined time period and exceeding two hours.

### E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0045.0401 | Portable Speed Trailer | Day |

Payment is full compensation for furnishing, hauling, placing, erecting, re-erecting, operating, maintaining, moving and removal of portable speed trailers during the construction of this project. Drums are paid separately under traffic control items.
SEF Rev 14_1211

## 146. Dynamic Late Merge System, Item SPV.0045.2000.

### A Description

This special provision describes furnishing, installing, operating, maintaining, monitoring, and removing a dynamic late merge system (DLMS) and/or delay time system as shown in the plans as necessary during construction work. The DLMS and/or delay time system are types of Intelligent Work Zone Systems. Actual deployment locations to be determined in the field by the engineer and vendor/manufacturer based on ramp locations and other field conditions.

### B Materials

Provide a DLMS consisting of static traffic control signs with temporary flashing beacons, Portable Changeable Message Signs (PCMS), Traffic Detectors (TD), and an Automated System Manager (ASM) per direction of traffic flow.

### B.1 System Operations

Provide an ASM with a module that allows for user input of triggering data thresholds based on speed, vehicle occupancy, and/or volume detected by the connected vehicle detectors.

The DLMS must operate as a unit where the flashing beacons and the PCMS activate at the same time for the same scenario. The contractor may base system operation on as little as one traffic detector.

The ASM must ensure that the messages sent to the connected PCMS and flashing beacons are synchronized so that all the messages on all the PCMS are for the same traffic conditions.

Additionally, the ASM must contain a feature that displays a communications status of all the detectors and PCMS and displays a warning to the user if any PCMS or detectors are failing to communicate.

### B.2 Portable Changeable Message Signs (PCMS)

Provide PCMSs in accordance to the bid item 643.1050 Traffic Control Signs PCMS.

### B.3 Static Traffic Control Signs with Temporary Flashing Beacons

Provide static traffic control signs with temporary flashing beacons in accordance to standard spec 658.2.2, Traffic Signal Faces.

**B.4 Traffic Detectors (TD)**
Provide TDs that are non-intrusive and capable of capturing traffic speed (mph), traffic vehicle occupancy, and traffic volume. Arrange coordination between the vendor/manufacturer and the engineer as to quantity and location of TD(s), and as to which specific detector(s) shall collect speed, occupancy, and volume data, and for what duration. The location of the TD(s) may not correspond with the location of the PCMSs.

**B.5 Automated System Manager (ASM)**
Provide ASM that assesses current traffic data captured by the TDs, determine the appropriate merging strategy based upon pre-determined criteria, and communicate appropriate messages to the traveling public through the PCMS. Provide real-time data from the ASM to a website. Locate the ASM within the project limits or house at a remote facility of the vendor's choosing.

Provide access to the ASM website, including speed and volume data, and current PCMS message, to project staff.

**B.6 Data**
Provide speed, occupancy, and volume data that are available to the department's staff at all times for the duration of work zone activity. Historical data must be password protected and stored on the website for each day the system is in use, with date and time stamps included. Provide an electronic copy of all data to the department staff each week for the duration of work zone activity and until the DLMS has been removed.

**B.7 System Settings**
Provide a password protected login to the ASM settings input module so that department staff may modify the settings used to trigger messages through the PCMS, modify or create messages for the respective PCMS for each respective traffic condition, and override the DLMS to display messages for other traffic conditions.

**B.8 System Acceptance**
Within 14-days after the bid opening the apparent low-bidder must submit vendor verification that the system will adequately perform the functions specified in this special provision. Adequate verification includes past successful performance of the system in Wisconsin, successful deployments in neighboring states, literature and references from successful use of the system by other agencies, and/or demonstration of the system to designated department staff upon request.

Within 14-days of receipt of the materials, the department will review the submittals and notify the contractor regarding acceptability of the proposed system, comments regarding inadequacies of the submittal to address, or denial of the proposed system due to failure to meet the requirements of this specification. Upon receipt of the department comments, the submittal and review cycle will begin again. Based on the comments from the department, resubmit materials to address issues or propose an alternate system within the materials submittal and review cycle described above.

Provide the contact information for a designated representative responsible for monitoring the performance of the system and for making modifications to the operational settings as directed by the engineer.

Furnish all testing and calibration equipment.

## C Construction

### C.1 General

Provide a DLMS that accommodates a minimum of four distinct traffic conditions: Free Flow, Congestion, Loss of DMS Communication, and Manual Override.

Have the system in place and operational seven days in advance of the start of lane closures.

### C.2 System Operation Strategy

Arrange that the vendor/manufacturer coordinate system operation, detection, trends/thresholds, and messaging parameters with; the engineer, the Southeast Region Work Zone Engineer, Rebecca Klein at (262) 822-5947; the department's Bureau of Traffic Operations representative, Jeff Madson at (414) 225-3723; and the construction contractor.

Free Flow:

The free flow traffic conditions are to be determined by WisDOT and input by the designated representative or department staff as directed by the engineer, but typical traffic conditions that warrant this strategy may include:

Trend of vehicle speeds at one or more point above an adjustable parameter. This parameter should be set for optimal results based on on-site monitoring and review as directed by the engineer.

Typically greater than 50 mph may be utilized as a guideline.

A trend of vehicle volume at one or more point below an adjustable parameter. This parameter should be set for optimal results based on on-site monitoring and review as directed by the engineer. Typically less than 1000 vehicles/hour/lane may be utilized as a guideline.

A trend including increased vehicle speeds together with reduced volume. These parameters should be set for optimal results based on on-site monitoring and review as directed by the engineer.

During Free Flow conditions, display no lane use messages, and therefore allow traffic to resume typical early merge operation.

Congestion:

The congestion traffic conditions are to be determined by WisDOT, but typical traffic condition warrants may include:

A trend of vehicle speeds at one or more points below an adjustable parameter. This parameter should be set for optimal results based on on-site monitoring and review as directed by the engineer. Typically less than 45 mph may be utilized as a guideline.

A trend of vehicle volume at one or more point above an adjustable parameter. This parameter should be set for optimal results based on on-site monitoring and review as directed by the engineer. Typically greater than 1500 vehicles/hour/lane may be utilized as a guideline.

A trend including reduced vehicle speeds together with increased volume. These parameters should be set for optimal results based on on-site monitoring and review as directed by the engineer.

When traffic conditions warrant a change to the late merge strategy, activate the temporary flashing beacons and display lane use messages on the PCMS together. Example messages for congestion traffic conditions are below. Locate the PCMS in advance of the lane closure as determined by the engineer and system provider based upon estimated queue lengths and project geometry.

Quantity and approximate locations of PCMS for various stages are shown in the plans.

The individual PCMS in the system shall initially display the following messages:

- Point of merge:
  MERGE HERE – TAKE TURNS

- Intermediate PCMS:
  DO NOT MERGE – USE ALL LANES

- PCMS located beyond estimated maximum queue length:
  IH 94 EASTBND – BACKUPS AHEAD or
  USH 45 NORTHBND – BACKUPS AHEAD

Loss of Communication:
If the DLMS has a loss of communication between the TD locations, display no message on the PCMS and display a warning message on the ASM interface.

Manual Override:
If the DLMS is needed to provide additional information due to other traffic concerns, the engineer will have the capability to manually override the PCMS display. The WisDOT Statewide Traffic Operations Center will also have the capability via website to change messages. Arrange that the vendor/manufacturer document all override messages.

**C.3 Calibration and Testing**

After the DLMS has been installed, the vendor shall successfully perform a field test and calibration at the DLMS location to verify the system is detecting accurate vehicle speeds and volumes, accurately relaying the information to the ASM and then to the PCMS.

Verify that the traffic flow information (speeds, volumes and occupancy) obtained from each TD is within +/- 5 percent of each of two 10- minute manual data periods.

**D Measurement**

The department will measure Dynamic Late Merge System per each system complete per day. Arrange that the vendor/manufacturer provide technical personnel for all system calibration, operation, maintenance, and timely on-call support services.

Upon notification to the designated contractor representative of a perceived deficiency in the operation of the system, or any individual part of the system, corrections to the system must be made within 24-hours. Failure to correct the deficiency will result in deduction of payment due the contractor for each day in which the deficiency is not corrected.

Any day in which the Dynamic Late Merge System, or any individual part of the system is not working properly for more than 30 minutes will result in one day being deducted from the quantity measured for payment. It is the engineer's sole discretion to assess the deductions for an improperly working DLMS. There will be no deductions in payment if the engineer decides not to use the DLMS at anytime, even though the DLMS is fully functioning.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0045.2000 | Dynamic Late Merge System | Day |

Payment is full compensation for furnishing, installing, operating, maintaining, monitoring, and removing the complete system, including Portable Changeable Message Signs (PCMS), Traffic Detectors (TD), an Automated System Manager (ASM), data, system acceptance, and traffic control signs with temporary flashing beacons.

## 147. Work Zone Construction Traffic Merge Warning System, Item SPV.0045.2001.

**A Description**

This special provision describes furnishing, installing, integrating, calibrating, making functional, and maintaining a work zone construction traffic merge warning system to provide advance warning of construction vehicles merging into the traffic stream to traffic upstream of the construction zone. The warning system must be functional at all times the respective work zone is in use.

This system will include one solar powered portable dynamic message sign, a wireless sensor to detect construction vehicle traffic as it is about to merge into the traffic stream, and communications between the sensor and the portable dynamic message sign that will activate the sign upon detection of a merging construction vehicle.

**B Materials**

Detection

Traffic detection for the system may be determined by the contractor but must be non-intrusive to the roadway pavement.

Possible systems include, but are not limited to, microwave radar vehicle detectors and video vehicle detectors.

Power for the detection system must be supplied with the detector system and may include, but not be limited to, a solar power generation system, a conventional power generator and battery and battery charger system, or any other self-sufficient power system the contractor chooses.

The power generation and batteries system for the signs shall be designed to operate 24 hours per day, 7 days per week in Wauwatosa, WI for the months included in the project.

Quantity and location of the detectors shall also be determined by the contractor.

Signing

- Furnish one portable solar powered dynamic message sign. The sign must consist of a full-matrix LED display and be capable of displaying a minimum of three rows of eight characters each spaced between 3-inches and 4-1/2-inches apart. Characters shall be 17-inches high and 11-inches wide. The maximum sign width shall be eleven 11-feet 6-inches.

- The sign controller shall have a memory system to store sign settings to prevent power failure from causing loss of sign settings.

- The signs shall have ambient light controlled continuous dimming with a minimum range of 100 percent to 40 percent for the sign display.

- The sign controller local interface shall not be permanently installed in the sign. Local control shall be through a hand-held, or otherwise removable, interfaces system to prevent unauthorized local control of the sign.

- The signing system must be operable within this overall system to display pre-programmed messages for a user-definable time when activated by the vehicle detection subsystem of this system.

- The solar power generation and batteries system for the signs shall be designed to operate 24 hours per day, 7 days per week in Wauwatosa, WI for the months included in the project.

Communications

- Communications between the vehicle detector system and the portable changeable message signs may include, but not be limited to, wireless contact closure, wireless serial data, or wireless Ethernet radios.

- All communications systems within this system shall be certified to be compliant with all pertinent F.C.C. regulations.

**C Construction**

The system must be submitted, approved, deployed, calibrated, and made operational before any work is done within the respective construction zones.

Submit for approval a written and illustrated plan for the system a minimum of four weeks prior to the planned deployment of the system. Include material cut sheets for detectors, communications devices, portable signs, and any controllers.

The plan must show detailed locations of necessary devices such as vehicle detectors.

Relocate the portable dynamic message signs, detectors, and other devices as necessary due to traffic control changes, staging changes, or work zone length changes.

**D Measurement**

Work Zone Construction Traffic Merge Warning System will be measured as a unit, completely installed, integrated, calibrated, made functional, and maintained through the project duration.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0045.2001 | Work Zone Construction Traffic Merge Warning System | Day |

Payment is full compensation for installing, configuring, calibrating, making functional, and maintaining the Work Zone Construction Traffic Merge Warning System; and for testing.

## 148. Dispute Review Board, Item SPV.0055.0401.

**A Description**

This special provision describes the process for resolving disputes between the contractor and the department by formation of an impartial review board to mediate disputes and serve as a technical advisor to both parties.

The purpose of a DRB is to resolve claims in a manner that complies with the contract, is impartial, and expedites the standard claims process. The DRB will do so by issuing recommendations that may be binding or non-binding depending on the claim amount.

**B (Vacant)**

**C (Vacant)**

**D Measurement**

The department and the contractor shall bear the costs and expenses of the DRB equally. Each DRB member shall be compensated and reimbursed expenses as prescribed in the Agreement executed by the department, contractor, and DRB member. DRB scope of work will include but are not limited to: staying abreast of project developments by means of periodic site visits and attendance of project meetings, review of project progress reports, meeting minutes, and other job documents, advisory services, and by other means mutually agreed by all parties. The DRB may also examine site conditions or specific construction problems relating to an existing or potential dispute.

It can be expected that the DRB will meet once to establish the board and three times thereafter. If mutually agreed upon and deemed necessary by both the department and the contractor, additional meetings, including meetings for claims resolutions, will be scheduled. Additional meetings are in excess to the number of expected meetings. Additional meetings will be paid for by these procedures.

If the DRB desires special services such as legal, technical, or other expert assistance or testimony, or other consultation, accounting, data research, and the like, both the department and the contractor must agree to the special services. When both parties agree to special services, the procedures described in standard spec 105.13.6.4.7 will be followed.

The department will provide, at no cost to the contractor, administrative services such as coordination of the DRB and state owned conference facilities. If other facilities and amenities are desired by both parties, these facility and amenity expenses shall be shared equally by both parties.

**E Payment**

DRB members shall be compensated as prescribed in the agreement.

The following payment procedures will be used:

- The DRB members shall submit invoices to the regional construction supervisor for review. After the regional construction supervisor has reviewed and approved the invoices, the invoices will be forwarded to the contractor for review and approval.
- If the contractor approves the invoices, the contractor shall make payment of all approved invoices.

- The contractor shall provide the project manager documentation verifying payment.
- The department will then pay the contractor one-half of the contractor paid invoice.

There will be no markups applied to expenses connected with the DRB, either by the DRB members or by the contractor when requesting payment of the department's share of DRB expenses. Regardless of the DRB recommendation, neither the department nor the contractor shall be entitled to reimbursement of DRB costs from the other party.

The department will pay for one-half of the contractor paid invoice under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0055.0401 | Dispute Review Board | DOL |

These procedures and the Agreement contain all of the provisions for compensation and expenses of the DRB.

## 149. Railroad Flagging Reimbursement, Item SPV.0055.0900.

**A Description**

This special provision describes the process for reimbursement for railroad flagging operations in accordance to the "Railroad Insurance and Coordination – Union Pacific Railroad" article.

**B (Vacant)**

**C (Vacant)**

**D Measurement**

The department will measure Railroad Flagging Reimbursement in accordance to the "Railroad Insurance and Coordination – Union Pacific Railroad" article.

**E Payment**

The department will pay for one-half of the railroad paid invoices under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0055.0900 | Railroad Flagging Reimbursement | DOL |

There will be no markups applied to expenses connected with Railroad Flagging.

Payments will be made in accordance to the "Railroad Insurance and Coordination – Union Pacific Railroad" article.

## 150. Exposing Existing Infrastructure Paved Area, Item SPV.0060.0003.

### A Description

This work includes locating and exposing existing infrastructure in paved areas as directed by the engineer. The contractor shall be responsible for compliance with s.182.0175 (2), Stats., with respect to precautions to be taken to avoid and prevent damage to utility facilities. The location of existing utilities and infrastructure needed to complete the contract work shall be addressed independent of this provision. Conform to Wisconsin State Statute 182.0175 (2) and Wisconsin Administrative code Trans 220. The work includes exposing existing infrastructure, including utilities, under paved surfaces and providing both lateral and depth measurements for use in determining potential infrastructure conflict solutions, and backfilling.

### B Materials

#### B.1 Backfill Slurry

Utilize backfill slurry as specified elsewhere in these special provisions.

### C Construction

#### C.1 General

The location of existing utilities and infrastructure needed to complete the contract work shall be addressed independent of this provision. This item will only be used as determined by the department for unique locations as directed by the engineer. It does not remove the contractors obligation to locate utilities as specified by Wisconsin Administrative code Trans 220 and Wisconsin State Statute 182.0175. The engineer will direct all exposing existing infrastructure in writing. Coordinate infrastructure exposures with the engineer and notify the infrastructure owner or their agents of this work two working days in advance so that they may be present when the work commences.

#### C.2 Excavation

Remove all paved surfaces at locations where the existing infrastructure is being exposed. Saw or remove concrete and asphaltic pavements to the nearest joint. Remove all pavement surfaces in such a way that all existing edges consist of a true line having a perpendicular edge with no unraveling. Maintain drainage at all times in accordance to standard spec 205.3.3. Take precautions, including temporary shoring, in order to prevent any undermining of the existing roadway. Perform work in accordance to all applicable laws, ordinances, rules, regulations, and OSHA standards.

Expose all infrastructure locations within a given location to a minimum depth of 18-inches below the bottom of each infrastructure. Excavate in a manner that protects the integrity of the infrastructure and prevents any damage to wrappings or protective coatings such as by any mechanical method or hand digging. Notify the infrastructure owner promptly if damage or interruption of service occurs. Repair all damage caused to such infrastructure resulting from negligence or carelessness at own expense.

Take all lateral and depth measurements in US feet and tenths thereof. Identify horizontal locations of each exposed infrastructure with a coordinate northing and easting referenced to the Wisconsin County Coordinate System (WCCS), Milwaukee County, NAD 83 (97). Provide vertical elevations for each exposed infrastructure and reference to NAVD 88 (91).

The infrastructure location shall remain exposed and available for visual inspection until the completion of all work in a given location. If the infrastructure shall remain exposed overnight or for prolonged periods of time, protect the location with traffic-rated steel plating, safety barriers, and all necessary traffic control devices that may be required under applicable standards or as directed by the engineer.

**C.3 Backfilling**

Upon completion of the infrastructure exposure, restore the location in kind to its original condition. When exposed infrastructure locations fall within local streets or city right-of-way, use backfill slurry to fill the entire location to the subgrade elevation.

Restore concrete pavement and concrete base course to the depth found in the existing roadway. Replace all locations that fall within live lanes of any roadway or pedestrian traffic with a high early-strength concrete pavement mix design having a depth equivalent to the existing pavement structure unless directed otherwise by the engineer. Locations that are closed to through traffic may use an approved concrete pavement mix conforming to standard spec 501. If directed by the engineer, tie concrete pavement and/or dowel it to the existing pavement according to the standard detail drawing for concrete pavement. All locations requiring asphaltic pavement shall consist of HMA Pavement Type E-3 unless otherwise directed by the engineer. Place the HMA pavement in lifts to a depth as directed by the engineer. Apply tack coat to composite pavement structures and between lifts. Alternate restoration methods may be used upon written approval from the engineer.

Place base aggregate dense between the subgrade surface and the bottom of the pavement.

**C.4 Documentation**

Provide documentation to the engineer and include the coordinates, elevations, and sketches of the infrastructure locations tied to known features in the plans. Reference each infrastructure to a proposed alignment with a station and offset. Where near a ramp, reference the ramp alignment. Document the size and/or diameter, composition, and a description of each infrastructure and the location of the elevation with respect to each infrastructure noted. Supply digital photographs of the uncovered infrastructure to the engineer in .jpeg format for future reference.

**D Measurement**

The department will measure Exposing Existing Infrastructure Paved Area as a unit for each location. A location may have multiple infrastructures located within the same exposure area. An exposure area will include all infrastructures within 6 lateral feet of each other and payment will only be made for one unit regardless of the number of infrastructures exposed. If the distance from the existing ground elevation, located above

the existing infrastructure, to a point 18 inches below the exposed infrastructure is between 0 and 6 feet, the department will measure each location as a single unit of work. If the distance from the existing ground elevation, located above the existing infrastructure, to a point 18 inches below the exposed infrastructure is greater than 6 feet and less than 12 feet, the department will pay for the item as two units of work.

**E Payment**

The department will pay for the measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0003 | Exposing Existing Infrastructure Paved Area | Each |

Payment is full compensation for mobilization; for furnishing all excavation; for disposing of all materials; for locating all infrastructure within each respective location; for providing documentation and photographs of infrastructure locations to the engineer; for furnishing all surveying associated with exposing existing infrastructure; for furnishing all maintenance of the location during construction; for furnishing all traffic control, safety barriers, and steel plating required; for temporary shoring; and for furnishing all finishing items including, but not limited to, base aggregate dense, backfill slurry, concrete pavement, HMA pavement, curb and gutter, and sidewalk located above the subgrade elevation.

## 151. Exposing Existing Infrastructure Unpaved Area, Item SPV.0060.0004.

**A Description**

This work includes locating and exposing existing infrastructure in unpaved areas as directed by the engineer. The contractor shall be responsible for compliance with s.182.0175 (2), Stats., with respect to precautions to be taken to avoid and prevent damage to utility facilities. The location of existing utilities and infrastructure needed to complete the contract work shall be addressed independent of this provision. Conform to Wisconsin State Statute 182.0175 (2) and Wisconsin Administrative code Trans 220. The work includes exposing existing infrastructure, including utilities, under unpaved surfaces and providing both lateral and depth measurements for use in determining potential infrastructure conflict solutions, and backfilling.

**B Materials**

**B.1 Backfill Slurry**

Utilize backfill slurry as specified elsewhere in these special provisions.

**C Construction**

**C.1 General**

The location of existing utilities and infrastructure needed to complete the contract work shall be addressed independent of this provision. This item will only be used as determined by the department for unique locations as directed by the engineer. It does not remove the contractors obligation to locate utilities as specified by Wisconsin Administrative code Trans 220 and Wisconsin State Statute 182.0175. The engineer will direct all exposing existing infrastructure in writing. Coordinate infrastructure exposures with the engineer

and notify the infrastructure owner or their agents of this work two working days in advance so that they may be present when the work commences.

**C.2 Excavation**
Remove all unpaved surfaces at locations where the existing infrastructure is being exposed. Maintain drainage at all times in accordance to standard spec 205.3.3. Take precautions, including temporary shoring, in order to prevent any undermining of the existing roadway. Perform work in accordance to all applicable laws, ordinances, rules, regulations, and OSHA standards.

Expose all infrastructure locations within a given location to a minimum depth of 18-inches below the bottom of each infrastructure. Excavate in a manner that protects the integrity of the infrastructure and prevents any damage to wrappings or protective coatings such as by any mechanical method or hand digging. Notify the infrastructure owner promptly if damage or interruption of service occurs. Repair all damage caused to such infrastructure resulting from negligence or carelessness at own expense.

Take all lateral and depth measurements in US feet and tenths thereof. Identify horizontal locations of each exposed infrastructure with a coordinate northing and easting referenced to the Wisconsin County Coordinate System (WCCS), Milwaukee County, NAD 83 (97). Provide vertical elevations for each exposed infrastructure and reference to NAVD 88 (91).

The infrastructure location shall remain exposed and available for visual inspection until the completion of all work in a given location. If the infrastructure shall remain exposed overnight or for prolonged periods of time, protect the location with traffic-rated steel plating, safety barriers, and all necessary traffic control devices that may be required under applicable standards or as directed by the engineer.

**C.3 Backfilling**
Upon completion of the infrastructure exposure, restore the location in kind to its original condition. Use backfill slurry, conforming to standard spec 501, to backfill the exposed infrastructure locations to the subgrade elevation except for areas located within local streets. In grassy areas, place 6-inches of topsoil, sod or seed and mulch, and fertilizer. Alternate restoration methods may be used upon written approval from the engineer.

**C.4 Documentation**
Provide documentation to the engineer and include the coordinates, elevations, and sketches of the infrastructure locations tied to known features in the plans. Reference each infrastructure to a proposed alignment with a station and offset. Where near a ramp, reference the ramp alignment. Document the size and/or diameter, composition, and a description of each infrastructure and the location of the elevation with respect to each infrastructure noted. Supply digital photographs of the uncovered infrastructure to the engineer in .jpeg format for future reference.

**D Measurement**
The department will measure Exposing Existing Infrastructure Unpaved Area as a unit for each location. A location may have multiple infrastructures located within the same exposure area. An exposure area will include all infrastructures within 6 lateral feet of each other, and payment will only be made for one unit regardless of the number of infrastructures exposed. If the distance from the existing ground elevation, located above the existing infrastructure, to a point 18 inches below the exposed infrastructure is between 0 and 6 feet, the department will measure each location as a single unit of work. If the distance from the existing ground elevation, located above the existing infrastructure, to a point 18 inches below the exposed infrastructure is greater than 6 feet and less than 12 feet, the department will pay for the item as two units of work.

**E Payment**
The department will pay for the measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0004 | Exposing Existing Infrastructure Unpaved Area | Each |

Payment is full compensation for mobilization; for furnishing all excavation; for disposing of all materials; for locating all infrastructure within each respective location; for providing documentation and photographs of infrastructure locations to the engineer; for furnishing all surveying associated with exposing existing infrastructure; for furnishing all maintenance of the location during construction; for furnishing all traffic control, safety barriers, and steel plating required; for temporary shoring; for furnishing backfill slurry and backfilling the locate.

## 152. Baseline CPM Progress Schedule, Item SPV.0060.0005; Monthly CPM Progress Schedule Updates, Item SPV.0060.0006.

*Replace standard spec 108.4 with the following:*

**108.4 Critical Path Method Progress Schedule**
**108.4.1 Definitions**
The department defines terms used in 108.4 as follows:

**Activity**
An administrative or construction task performed during the course of the project with a defined duration, and scheduled (or actual) start and finish dates.

**Critical Path**
The longest continuous chain of activities through the CPM schedule that establishes the minimum overall project duration.

**Construction Activity**
Construction activities are discrete work activities performed by the contractor, subcontractors, utilities, or third parties within the project limits.

**CPM Progress Schedule**
A Critical Path Method (CPM) Progress Schedule is a network of logically related activities. The CPM schedule calculates when activities can be performed and establishes the critical or longest continuous path or paths of activities through the project.

**Float**
Float, as used herein, is the total float of an activity; i.e., it is the amount of time between the date when an activity can start (the early start), and the date when an activity must start (the late start). In cases where the total float of an activity has a different value when calculated based on the finish dates, the lower (more critical) value will govern.

**Forecast Completion Date**
The completion date predicted by the latest accepted CPM Update, which may be earlier or later than the contract completion date, depending on progress.

**Fragnet**
A group of logically-related activities, typically inserted into an existing CPM schedule to model a portion of the project, such as the work associated with a change order.

**Initial Work Plan**
The initial work plan is a time-scaled CPM schedule showing detailed activities for the first 90 calendar days of work and summary level activities for the remainder of the project.

**Intermediate Milestone Date**
A contractually required date for the completion of a portion of the work, so that a subsequent portion of the work or stage of traffic phasing may proceed.

**Master Program Schedule**
The department's schedule for the overall Zoo Interchange  Freeway Program, including intermediate milestone dates and contract completion dates, and containing codes for use as a template for the development of the contractor's schedule.

**Master Project Schedule**
The department's schedule for the contract work, developed during design, and provided to the contractor for informational purposes only.

**Work Breakdown Structure (WBS**)
A framework for organizing the activities that make up a project by breaking the project into successively greater detail by level. A WBS organizes the project work. It does not address the sequencing and scheduling of project activities.

**108.4.2 Department's Master Schedules**

**108.4.2.1 Master Project Schedule**

If requested by a bidder or by the contractor, the department will supply its Master Project Schedule for the contract work, developed during design. The Master Project Schedule is not a direction on how to perform the work. The Master Project Schedule reflects one possible approach to the work, consistent with the phasing requirements.

**108.4.2.2 Master Program Schedule**

Within five business days after award, the department will provide its current Master Program Schedule, containing intermediate milestone constraints, standard activity codes, and a standard WBS for the contractor to use to develop its schedule.

**108.4.2.3 Use of Department's Master Schedules**

The department's Master Schedules provide information to assist the contractor in preparing its schedule. The Master Schedules are not contract documents. The logic contained in the Master Schedules is not intended to alter or supplement contract requirements for the phasing of the work, but to reflect those requirements.

**108.4.3 Contractor's Scheduling Responsibilities**

Prepare and submit a CPM progress schedule that accurately reflects the plan for the performance of the work, based on the physical requirements of the Work, and Traffic Phasing requirements. The CPM schedule is the contractor's committed plan to complete all work within the completion deadlines. Full responsibility is assumed for the prosecution of the work as shown. The CPM schedule is not part of the contract. Schedule the Work in the manner required to achieve the completion date and intermediate milestone dates specified in the Prosecution and Progress Special Provision.

Use the department-provided Master Program Schedule as a template to develop the Initial Work Plan and the Baseline CPM Progress Schedule. Use the Master Program Schedule's ID coding structure to categorize activities by Contract, Stage, Location, and Responsibility to ensure compatibility with the Master Program Schedule and with schedules prepared by other contractors. Add additional activity codes as necessary, but do not delete the coding structure provided.

To ensure compatibility with the Master Program Schedule, use the latest version of Primavera Project Planner (P6), by Primavera Systems, Inc., Bala Cynwyd, PA to prepare the Initial Work Plan, Baseline CPM Progress Schedule, and Monthly CPM Updates.

Designate a Project Scheduler who will be responsible for scheduling the Work and submit a professional resume describing a minimum of three years of scheduling experience on urban, interstate-highway reconstruction work of similar size and complexity, including recent experience with P6.Obtain approval of the submitted resume prior to scheduling the work.

**108.4.4 Submittals**

**108.4.4.1 Initial Work Plan**

Within ten business days after the Initial Work Plan Workshop, as scheduled in standard spec 103.10, submit an Initial Work Plan consisting of the following:

1. Develop the Initial Work Plan using the Master Program Schedule as a template. Identify the contemplated start and completion dates for each activity.

2. Provide a detailed plan of activities to be performed within the first 90 calendar days of the contract. Provide construction activities with durations not greater than 28 calendar days (20 business days), unless the engineer accepts requested exceptions.

3. Provide activities as necessary to depict administrative work, including submittals, reviews, and procurements that will occur within the first 90 calendar days of the contract. Show additional activities that require department review or approval. Activities other than construction activities may have durations greater than 28 calendar days (20 business days). Allow 21 calendar days (15 business days) for department review of submittals.

4. Provide summary activities for the balance of the project. Summary activities may have durations greater than 28 calendar days (20 business days).

5. Submit three copies of the Initial Work Plan in a compressed (XER) format on three separate CDs.

6. The engineer will accept the contractor's Initial Work Plan or provide comments within five business days after receipt of the Initial Work Plan. Address comments and resubmit the Initial Work Plan as necessary. Do not begin work until the engineer accepts the Initial Work Plan. The department will use the initial work plan to monitor the progress of the work until the Baseline CPM Progress Schedule is accepted.

7. Submit an updated version of the Initial Work Plan on a monthly basis until the engineer accepts the Baseline CPM Progress Schedule. With each update, include actual start dates, completion percentages, and remaining durations for activities started but not completed. Include actual finish dates for completed activities.

8. Ensure the Initial Work Plan shows completing the work within the interim completion dates and specified completion date.

9. Include activities that describe essential features of the work and activities that might potentially delay contract completion. Identify activities that are controlling items of work.

**108.4.4.2 Baseline CPM Progress Schedule**

Within 15 business days after the CPM Scheduling Workshop, as scheduled in standard spec 103.10, submit a Baseline CPM Progress Schedule and written narrative consisting of the following:

1. Develop the Baseline CPM using the Master Program Schedule as a template. The Baseline CPM is the contractor's committed plan to complete the Work within the time frames required to achieve the contract completion date and Intermediate milestone dates. The department will use the schedule to monitor the progress of the work. Include the following:

    1.1 Provide a detailed plan of activities to be performed during the entire contract duration, including all administrative and construction activities required to complete the work as described in the contract documents. Provide construction activities with durations not greater than 28 calendar days (20 business days), unless the engineer accepts requested exceptions.

    1.2 Provide activities as necessary to depict administrative work, including submittals, reviews, procurements, inspections, and all else necessary to complete the work as described in the contract documents. Activities other than construction activities may have durations greater than 28 calendar days (20 business days). Allow 21 calendar days (15 business days) for department review of submittals.

    1.3 Submit a temporary drainage plan showing the interface between various stages of a project as well as the interface with adjacent projects.

    1.4 Include activities that describe essential features of the work and activities that might potentially delay contract completion. Identify activities that are controlling items of work.

    1.5 Show completing the work within interim completion dates and the specified completion date.

    1.6 Provide summary activities for the balance of the project. Summary activities may have durations greater than 28 calendar days (20 business days).

    1.7 Provide activities as necessary to depict third party work related to the contract.

    1.8 Make allowance for specified work restrictions, non-working days, time constraints, calendars, and weather; and reflect involvement and reviews by the department, and coordination with adjacent contractors, utility owners, and other third parties.

1.9 With the exception of the Project Start Milestone and Project Completion Milestone, all activities must have predecessors and successors. The start of an activity shall have a Start-to-Start or Finish-to-Start relationship with preceding activities. The completion of an activity shall have a Finish-to-Start or Finish-to-Finish relationship with succeeding activities. Do not use Start-to-Finish relationships. Do not use Finish-to-Start relationships with a lag unless the engineer accepts requested exceptions.

1.10 Schedule all intermediate milestones in the proper sequence and input as either a "Start-no-Earlier-Than" or "Finish-no-Later-Than" date. Provide predecessors and successors for each intermediate milestone as necessary to model each Stage of the Work. Unless the engineer accepts a requested exception, the schedule should encompass all the time in the contract period between the starting date and the specified completion date.

1.11 Using the bid quantities and unit prices, develop an anticipated cash-flow curve for the project, based on the Baseline CPM.

2. Provide three hard copies of a hand-drawn or electronically drafted logic diagram depicting the CPM network. Organize the logic diagram by grouping related activities, based on the activity codes in the CPM.

3. Provide a written narrative with the baseline CPM explaining the planned sequence of work, as-planned critical path, critical activities for achieving intermediate milestone dates, traffic phasing, and planned labor and equipment resources. Use the narrative to further explain:

3.1 The basis for activity durations in terms of production rates for each major type of work (number of shifts per day and number of hours per shift), and equipment usage and limitations.

3.2 Use of constraints.

3.3 Use of calendars.

3.4 Estimated number of adverse weather days on a monthly-basis.

3.5 Scheduling of permit and environmental constraints, and coordination of the schedule with other contractors, utilities, and public entities.

4. Submit three copies of the Baseline CPM in a compressed (XER) format on three separate CDs.

Within ten business days of receiving the Baseline CPM, the engineer will provide comments and schedule a meeting for the contractor to present its Baseline CPM and answer questions raised in the engineer's review.

At the meeting scheduled by the engineer, provide a presentation of the Baseline CPM. In the presentation, include a discussion of the staging and sequencing of the work, understanding of traffic phasing, and application of labor and equipment resources to the Work. Address comments raised in the engineer's review.

Within five business days after the meeting, the engineer will accept the contractor's Baseline CPM schedule or provide comments. Address the engineer's comments and resubmit a revised Baseline CPM within ten business days after the engineer's request. If the engineer requests justification for activity durations, provide information that may include estimated labor, equipment, unit quantities, and production rates used to determine the activity duration.

The department will only make progress payments for the value of materials, as specified in standard spec 109.6.3.2, until the contractor has submitted the Baseline CPM Schedule. The department will retain 10 percent of each estimate until the department accepts the Baseline CPM Schedule.

The engineer will accept the Baseline CPM based solely on whether the schedule is complete as specified in this section. The engineer's acceptance of the schedule does not modify the contract or validate the schedule.

The department will not consider requests for contract time extensions as specified in 108.10 or additional compensation for delay specified in standard spec 109.4.7 until the department accepts the Baseline CPM schedule.

**108.4.4.3 Monthly CPM Updates**

Submit CPM Updates on a monthly basis after acceptance of the Baseline CPM. With each CPM Update, include the following:

1. Actual start dates, completion percentages, and remaining durations for activities started but not completed, and actual finish dates for completed activities, through the final acceptance of the project.

2. Additional activities as necessary to depict additions to the contract by changes and logic revisions as necessary to reflect changes in the contractor's plan for prosecuting the work.

3. Include a narrative report that includes a brief description of monthly progress, changes to the critical path from the previous update, sources of delay, potential problems, work planned for the next 30 calendar days, and changes to the CPM schedule. Changes to the logic of the CPM schedule include the addition or deletion of activities and changes to activity descriptions, original durations, relationships, constraints, calendars, or previously recorded actual dates. Justify changes to the CPM schedule in the narrative by describing associated changes in the planned methods or manner of performing the work or changes in the work itself.

4. Submit three copies of each CPM Update in a compressed (XER) format electronically, as agreed to with the department.

5. If additions or changes were made to the CPM schedule since the previous update, submit an updated hard copy of the revised logic diagram.

6. Within five business days of receiving each CPM Update, the engineer will provide comments and schedule a meeting as necessary to address comments raised in the engineer's review. Address the engineer's comments and resubmit a revised CPM Update within five business days after the engineer's request.

**108.4.4.4 Three-Week Look-Ahead Schedules**

Submit Three-Week Look-Ahead Schedules on a weekly basis after NTP. The schedule can be hand drawn or generated by computer. With each Three-Week Look-Ahead include:

1. Activities underway and as-built dates for the past week.

2. Provide actual as-built dates for completed activities through final acceptance of the project.

3. Planned work for the upcoming two-week period.

4. The activities of the Three-Week Look-Ahead schedule shall include the activities underway and critical RFIs and submittals, based on the CPM schedule. The Three-Week Look-Ahead may also include details on other activities not individually represented in the CPM schedule.

5. On a weekly basis, the department and the contractor shall agree on the as-built dates depicted in the Three-Week Look-Ahead schedule or document any disagreements. Use the as-built dates from the Three-Week Look-Ahead schedules for the month when updating the CPM schedule.

**108.4.4.5 Weekly Production Data**

Provide estimated and actual weekly production rates for items of work on a weekly basis as follows:

1. Provide data on the following items by area or station:

    1.1 Retaining Walls
        a. Leveling Pads - LF
        b. Set Panels - SF
        c. Parapets - LF
        d. Wall Face - Bay
        e. Tie Backs – Each
        f. Anchor Slabs – LF
        g. Drilling - Each
        h. Coping – LF
        i. Footing - LF

    1.2 Bridge Construction
        a. Footings—Each
        b. Columns—Each
        c. Abutments—Each
        d. Pier Caps—Each
        e. Girder Spans – Each
        f. Decked Spans – Each
        g. Poured Spans – Each

    1.3 Roadway Excavation—CY per week

    1.4 Roadway Structural Section
        a. Grading/Subgrade Preparation—SY
        b. Base Material Placement—Ton
        c. Base Material Subgrade Preparation—SY
        d. Asphalt Pavement—Ton
        e. Concrete Pavement – SY

    1.5 Tunnels
        a. Drilled Shafts – Each
        b. Beam Seat/Cap - LF
        c. Girders - Each
        d. Deck – Percent

    1.6 Noise Walls
        a. Drill/Set Ground Mounted Posts - Each
        b. Install Ground Mounted Panels - Each
        c. Anchor/Set Structure Mounted Posts - Each
        d. Install Structure Mounted Panels - Each

2. For each item, indicate the actual daily production for the past week and the anticipated weekly production for the next week.

3. Submit the data in an electronic spreadsheet format at the same time the Three-Week Look-Ahead is submitted. On a weekly basis, the department and the contractor shall agree on the production data or document any disagreements.

**108.4.5 Progress Review Meetings**

**108.4.5.1 Weekly Progress Review Meetings**

After completing the weekly submittal of the Three-Week Look-Ahead and production data, attend a weekly meeting to review the submittals with the department. At the meeting, address comments as necessary, and document agreement or disagreement with the department.

**108.4.5.2 Monthly Update Review Meetings**

After submitting the monthly update and receiving the engineer's comments, attend a job-site meeting, as scheduled by the engineer, to review the progress of the schedule. At that meeting, address comments as necessary, and document agreement or disagreement with the department. The monthly meeting will be coordinated to take place on the same day and immediately before or after a weekly meeting, whenever possible.

**108.4.6 CPM Progress Schedule Revisions**

Revision by the contractor if necessary due to changes in the Work or project conditions and authorized by the engineer, a CPM Progress Schedule Revision may be submitted, although the next Monthly CPM Update is not yet due. Prepare the CPM Revision in the same format as required for Monthly CPM Updates, including justification for changes to the schedule. The process for comment and acceptance of a CPM Revision will be the same as for Monthly CPM Updates. If the CPM Revision is accepted, prepare the next monthly update based on the revised CPM. If the CPM Revision is rejected, prepare the next monthly update based on the previous month's update.

Engineer's Right to Request Revisions—The engineer will monitor the progress of the work and may request revisions to the CPM schedule. Revise the schedule as requested by the engineer, and submit a CPM Progress Schedule Revision within ten business days of the request. The process for comment and acceptance of a CPM Revision will be the same as for Monthly CPM Updates. The engineer may request that the contractor revise the CPM schedule for one or more of the following reasons:

1. The forecast completion date is scheduled to occur more than 14 calendar days after the contract completion date.

2. An intermediate milestone is scheduled to occur more than 14 calendar days after the date required by the contract.

3. The engineer determines that the progress of the work differs significantly from the current schedule.

4. A contract change order requires the addition, deletion, or revision of activities that causes a change in the contractor's work sequence or the method and manner of performing the work.

**108.4.7 Documentation Required for Time Extension Requests**

To request a time extension to an intermediate milestone date or the contract completion date associated with changes to the work, provide a narrative detailing the work added or deleted and the other activities affected, based on the latest accepted CPM Update. For added work, submit a proposed fragnet of activities to be added or revised in the CPM schedule, indicating how the fragnet is to be tied to the CPM schedule.

To request a time extension to an intermediate milestone date or the contract completion date associated with delays to the work, provide a narrative detailing the affected activities and the cause of the delay, based on the latest accepted CPM Update. Requests for time extensions due to delays should meet the following criteria:

1. For requests to extend the contract completion date, include a description of how the delay affected the project's critical path, based on the latest accepted CPM Update.

2. For requests to extend an intermediate milestone date, include a description of how the delay affected the controlling (longest) path to the milestone, based on the latest accepted CPM Update.

3. The department and the contractor agree that the float is not for the exclusive use or financial benefit of either party. Either party has the full use of the float on a first come basis until it is depleted.

**108.4.8 Payment for CPM Progress Schedule**

The department will pay for measured quantities at the contract unit price for work acceptably completed under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0005 | Baseline CPM Progress Schedule | Each |
| SPV.0060.0006 | Monthly CPM Progress Schedule Updates | Each |

The department will only make progress payments for the value of materials, as specified in standard spec 109.6.3.2.1, until the Baseline CPM schedule has been submitted. The department will retain ten percent of each estimate until the department accepts the Baseline CPM schedule.

The department will only make progress payments for the value of materials, as specified in standard spec 109.6.3.2.1, until the Monthly CPM schedule updates have been submitted. The department will retain ten percent of each estimate until the department accepts the Monthly CPM schedule update.

Payment is full compensation for furnishing all work required under these bid items. The department will pay the contract unit price for the Baseline CPM schedule after the department accepts the schedule. Thereafter, the department will pay the contract unit price for each Monthly CPM Update acceptably completed.

## 153. Removing High Mast Lighting Tower Concrete Base, Item SPV.0060.0010.

### A Description

This special provision describes completely removing high mast lighting tower concrete bases that vary in diameter between 4'-0" and 4'-6" and vary in depth between 25' and 35'.

### B (Vacant)

### C Construction

Conform to standard spec 204.3. Backfill all trenches, holes, and pits with suitable fill material conforming to standard spec 209.

It is the responsibility of the contractor to provide access to the existing high mast lighting tower concrete base. Furnishing and placing all materials necessary to construct a path or support pad to assist the contractor in removing the concrete base is included in the Removing High Mast Lighting Tower Concrete Base bid item.

### D Measurement

The department will measure Removing High Mast Lighting Tower Concrete Base as each individual unit, acceptably completed.

### E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0010 | Removing High Mast Lighting Tower Concrete Base | Each |

Payment is full compensation for removing and properly disposing of all materials; for furnishing all excavating; for placing and compacting backfill material; for furnishing and placing all materials necessary to provide access to the concrete base; and for furnishing and placing all materials required to support equipment used to remove the concrete base.

Removing the existing high mast lighting tower and lamp disposal will be paid for under separate items.

## 154. Removing High Mast Lighting Tower, Item SPV.0060.0011.

**A Description**

This special provision describes removing and disposing of existing high mast lighting towers, having varying heights ranging between 75 feet and 175 feet, and other accessories.

**B (Vacant)**

**C Construction**

At least five working days prior to the start of removing high mast lighting tower, notify the WisDOT lighting engineer. Safely disconnect power to the high mast lighting tower. Remove bolts and all materials above the existing concrete base including but not limited to the tower, lowering mechanism, ring and cables. Dispose of all removed material at an offsite location.

Return functioning luminaires to the department. Dispose of nonfunctioning luminaires per applicable regulations.

Deliver luminaires to the department at the South 60th Street office in West Allis. Consolidate all deliveries into a truckload or more, except when all the luminaires removed under a contract measure less than a truckload, deliver as one load at one time. Contact Mike Prebish at (414) 266-1170, Monday through Thursday from 8:00 AM to 4:00 PM to set up an appointment for delivery.

It is the responsibility of the contractor to provide access to the existing high mast lighting tower. Furnishing and placing all materials necessary to construct a path or support pad to assist the contractor in removing the tower is included in the Removing High Mast Lighting Tower bid item.

**D Measurement**

The department will measure Removing High Mast Lighting Tower by the individual unit, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0011 | Removing High Mast Lighting Tower | Each |

Payment is full compensation for removing and properly disposing of all materials; for contacting the WisDOT lighting engineer; for disconnecting power; for delivering functioning luminaires to the department; for furnishing and placing all materials necessary to provide access to the lighting tower; and for furnishing and placing all materials required to support equipment used to remove the towers.

Removing the existing high mast lighting tower concrete base and lamp disposal will be paid for under separate items.

## 155. Shallow Marsh Rootstock, Item SPV.0060.0013.

**A Description**

This special provision describes furnishing and planting wetland herbaceous plant rootstock of the species specified, complete in the shallow marsh as designated on the plans or as directed by the engineer.

**B Materials**

Plant materials shall be nursery-grown stock, not wild-collected. Plant materials shall be obtained from an area not to exceed 150 linear miles from the project site and within the State of Wisconsin. Plants must be healthy, 1 to 2 years old, and have well-developed root systems. Plants that show evidence of mold, rot, freezing, or frost damage will be rejected. If a specified rootstock cannot be obtained, submit verification to the engineer. Substitutions may be made after approval of the engineer and wetland ecologist.

**Shallow Marsh Planting Zone (0.08 Acre);**

| **Scientific Name** | **Common Name** | **Southwest Core Pond** |
|---|---|---|
| *Scirpus atrovirens* | green bulrush | 13 |
| *Scirpus fluviatilis* | river bulrush | 70 |
| *Scirpus validus* | soft stem bulrush | 11 |
| *Sparganium eurycarpum* | giant bur reed | 10 |
| Total | | 104 |

**C Construction**

**C.1 General**

Install plants in the shallow marsh prior to any seeding and mulching operations and within the specified planting periods. Minimize disturbance of the shallow marsh. Provide the engineer with 5 working days notice of the intended date of delivery of rootstock to the project site. Present all rootstock to the engineer for inspection and partial acceptance prior to planting.

**C.2 Care**

Handle and pack all rootstock to prevent damage. Keep the rootstock moist and cool prior to planting. Do not disturb freshly installed plants with subsequent activities. Properly care for all plants, from the time of planting until final acceptance of the work under the contract.

**C.3 Timing of Planting**

Install wetland rootstock on the day of delivery at the project site. In the event that this is not possible, temporarily store plants by placing them in a well-ventilated, cool, shaded, moist storage space. This storage period shall not exceed 48 hours. Plant rootstock between May 1 and June 15, or after November 1 and prior to November 15

**C.4 Planting Layout**
Install plants at a density of approximately 1300 plants per acre (spacing approximately one plant per 3 feet) as shown on the plans or as directed by the engineer.

**C.5 Planting Method**
**I**nstall plants by hand with the use of a tree spud or other comparable method, or as directed by the engineer.

**D Measurement**
The department will measure Shallow Marsh Rootstock by the number of plants, complete in place and accepted.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0013 | Shallow Marsh Rootstock | Each |

Payment is full compensation for furnishing, delivering, storing, and planting the plants and for performing all necessary work such as excavating plant holes, anchoring rootstock, performing necessary care, such as trimming, and required replacements pending acceptance.

## 156. Removing Utility Vault, Item SPV.0060.0015.

**A Description**
This special provision describes completely or partially removing utility vaults, including manholes, and disposing of all resulting materials in accordance to the plans, standard specifications, Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and amendments (SSSW), and as hereinafter provided.

The utility vaults generally vary in size from 4 feet by 6 feet to 8 feet by 12 feet and the utility manholes generally vary in diameter from 4 feet to 8 feet. The utility vault walls vary in thickness between 8 inches and 18 inches and vary in depth between 4 feet and 10 feet.

Removing and abandoning storm sewer manholes and sanitary sewer manholes will be paid for under separate items.

**B Materials**
Furnish Backfill Granular in accordance to the pertinent requirements of standard spec 209 for use as backfill material as directed by the engineer.

**C Construction**
Obtain approval from the engineer before removing utility vault. Perform work in accordance to standard spec 204 and as hereinafter provided. The contractor is responsible for the safe methods and sequence of controlled removal operations.

As directed by the engineer, completely remove the utility vault or break down and remove walls and foundations, including all attached parts and connections, to the extent required to avoid interfering with new construction work.

Thoroughly clean the ends of the existing pipes or ducts and bulkhead the existing utility connections to remain with brick or concrete block masonry, or with any grade of concrete specified under standard spec 501.3.1.3, or any engineer-approved commercial grade of concrete, or plug by other engineer-approved method.

Backfill all excavations or voids not occupied by other work under this contract in accordance to standard spec 204.3.1.2.

All materials generated during removal activities are the property of the contractor. Dispose of removed material as specified for disposing of materials in standard spec 203.3.4. This includes, but is not limited to; frames, grates, adjusting rings, bricks, mortar, concrete foundation, conduit, hangers, racks, wiring, pipe, and fittings.

**D Measurement**

The department will measure Removing Utility Vault by each individual unit, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0015 | Removing Utility Vault | Each |

Payment is full compensation for furnishing all excavating; for breaking down the utility vault; for cutting and removing the utility vault; for furnishing any required brick, concrete block, or concrete; for furnishing all plugging and bulkheading; for furnishing all backfilling; for furnishing, placing, and compacting Backfill Granular; and for hauling and disposing of all materials.

## 157. Removing Old Sign Structure S-40-100, Item SPV.0060.0016; S-40-133, Item SPV.0060.0017; S-40-156, Item SPV.0060.0018; S-40-128, Item SPV.0060.0019; S-40-213, Item SPV.0060.0020; S-40-214, Item SPV.0060.0021; S-40-309, Item SPV.0060.0023; S-40-35, Item SPV.0060.0024; S-40-78, Item SPV.0060.0026; S-40-99, Item SPV.0060.0027; S-40-995, Item SPV.0060.0028; S-40-996, Item SPV.0060.0029.

**A Description**

Work under these items consists of completely removing existing sign structures and their concrete base foundations and disposing of resulting materials in accordance to standard spec 203 and as hereinafter provided.

Removal of signs will be measured and paid for under other items.

**B (Vacant)**

**C Construction**
Remove and dispose of the existing superstructure (columns and overhead trusses) and the entire concrete foundations of each sign structure.

**D Measurement**
The department will measure Removing Old Sign Structure S-40-100, S-40-133, S-40-156, S-40-128, S-40-213, S-40-214, S-40-309, S-40-35, S-40-78, S-40-99, S-40-995, S-40-996, as a unit for each specific sign structure removed, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0016 | Removing Old Sign Structure S-40-100 | Each |
| SPV.0060.0017 | Removing Old Sign Structure S-40-133 | Each |
| SPV.0060.0018 | Removing Old Sign Structure S-40-156 | Each |
| SPV.0060.0019 | Removing Old Sign Structure S-40-128 | Each |
| SPV.0060.0020 | Removing Old Sign Structure S-40-213 | Each |
| SPV.0060.0021 | Removing Old Sign Structure S-40-214 | Each |
| SPV.0060.0023 | Removing Old Sign Structure S-40-309 | Each |
| SPV.0060.0024 | Removing Old Sign Structure S-40-35 | Each |
| SPV.0060.0026 | Removing Old Sign Structure S-40-78 | Each |
| SPV.0060.0027 | Removing Old Sign Structure S-40-99 | Each |
| SPV.0060.0028 | Removing Old Sign Structure S-40-995 | Each |
| SPV.0060.0029 | Removing Old Sign Structure S-40-996 | Each |

Payment is full compensation for completely removing and disposing of all materials as set forth above including the entire sign base foundations; for cutting off anchor bolts and conduits; and for sealing conduits.

## 158. Temporary Bus Stop Pad, Item SPV.0060.0101.

**A Description**
This special provision describes furnishing, maintaining, moving, and removing temporary pavement for Temporary Bus Stop Pads in the median during construction and for Temporary Bus Stop Pads in the terrace, as shown on the plans.

**B Materials**
Furnish asphaltic surface temporary in accordance to standard spec 465.2 (2) or furnish concrete in accordance to standard spec 602.2.

**C Construction**
Construct temporary bus stop pads 10 feet long by 8 feet wide (or the width of the terrace) that meet the requirements of the current Americans with Disabilities Act Accessibility Guidelines (ADAAG).

Form the foundation by excavating at least 3 inches. Tamp or compact the foundation to ensure stability.

Place two inches of Asphaltic Surface Temporary in accordance to standard spec 465.3.1 or place 3 inches of concrete in accordance to standard spec 602.3.2.3 or as the engineer directs, and as shown in the plan.

Separate temporary bus stop pads in the median from construction operations with temporary fencing with a minimum strength and height required to contain pedestrians, as approved by the engineer. Locate the temporary bus stop pads outside the immediate work area, as directed by the engineer. Connect temporary bus stop pads in the median to crosswalks, existing sidewalks, or permanent sidewalks.

Reconstruct or move temporary bus stop pads if required for utility installation or paving operations.

Temporary bus stop signs and poles will be furnished and installed by Milwaukee County Transit System.

**D Measurement**
The department will measure Temporary Bus Stop Pad as each individual unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0101 | Temporary Bus Stop Pad | Each |

Payment is full compensation for furnishing and installing all materials; for constructing; for reconstructing or moving; for removing; and for furnishing and installing temporary fence.
SEF 14_0411

## 159. Concrete Barrier Type S56A Special Light Pole Base, Item SPV.0060.0126.

**A Description**
This special provision describes furnishing and installing special concrete barrier light pole bases as shown on the plans and as hereinafter provided.

## B Materials

### B.1 Concrete Barrier

Furnish materials in accordance to standard spec 603.2.

### B.2 Concrete Bases

Furnish materials in accordance to standard spec 654.2.1, Concrete Bases.

### B.3 Junction Boxes

Furnish 18 X 12 X 6 – inch 316 stainless steel junction boxes with a recessed cover. Junction box shall meet NEMA 4 standards for protection against windblown dust and rain and splashing water. Furnish standard covers with stainless steel hex-head mounting bolts with each box assembly. Boxes shall have a neoprene gasket with provision for allowing drainage out of the box.

Junction boxes shall be furnished with factory installed mounting buttons as required to attach grounding lugs and mechanical connectors as shown on the plans. Provide engineer-approved protection that totally and permanently seals connections with a silicone or rubberized caulk. One junction box per based is required.

### B.4 Electrical Wiring Connectors

Furnish rubber insulated submersible secondary connectors rated for copper conductors (minimum 12 AWG) as required for splicing in each location. Secondary connectors shall include silicone grease and CO-OX oxide inhibitor and meet the performance requirements of ANSI C119.1 and C119.4.

### B.5 Conduit, Fittings and Expansion/Deflection Couplings

Furnish rigid non-metallic schedule 40 PVC conduit and fittings as shown on the plans conforming to the pertinent provisions of standard spec 652.

Furnish UL listed expansion/deflection coupling joints as shown on the plans. Expansion/deflection coupling joints shall be rated for use with rigid metallic conduit and provide a watertight and corrosion resistant connection which allows for movement in all directions. Couplings shall maintain a constant inner diameter and provide a smooth insulated wireway for protection of the conductors. Couplings shall include an integral bonding jumper. Two couplings per base are required.

### B.6 Anchor Bolt Assemblies

Furnish anchors of the size and spacing as given on the plans, and that conform to ASTM A449 or AASHTO M 314 GR 55. The upper 8 inches of the bolts, nuts, and washers shall be hot-dipped galvanized in accordance to ASTM A153, Class C. Provide enlarged threads on nuts for proper fit after galvanizing.

### B.7 Expansion Material

Furnish 3/4-inch expansion material in accordance to standard spec 415.2.3, Expansion Joint Filler. Use elastic type joint filler to seal the surface of the expansion joint.

**C Construction**
Perform work in accordance to the pertinent requirements of standard specs 603.3 and 654.3, the plans, standard detail drawings, and as hereinafter provided.

Install junction boxes as shown in the plans and as the manufacturer directs.

Install expansion/deflection couplings as the manufacturer directs. Coordinate the connection of the conduit into the receiving roadway barrier prior to pouring the concrete base.

All secondary connectors and miscellaneous wiring, fusing and grounding connections shall be installed in accordance to standard spec 659.3.2 and as the manufacturer directs.

Provide two nuts and two washers per anchor bolt, and install per light standard manufacturer's recommendations.

**D Measurement**
The item will measure Concrete Barrier Type S56 Special Light Pole Base and Concrete Barrier Type S56A Special Light Pole Base by the unit, acceptably installed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0126 | Concrete Barrier Type S56A Special Light Pole Base | Each |

Payment for the Concrete Barrier Type S56 Special Light Pole Base and Concrete Barrier Type S56A Special Light Pole Base bid items is full compensation for furnishing and installing all materials including conduit, couplings, bushings, caps or plugs or both, anchor rods, nuts, washers, expansion material, grounding electrodes, exothermic welds, copper equipment grounding conductors, bar steel reinforcement, junction boxes, and concrete; for excavating, backfilling, and disposing of surplus materials; and for furnishing and installing the anchor bolt assemblies.

## 160. Concrete Barrier Transition Type G1, Item SPV.0060.0127; Type G2, Item SPV.0060.0128; Type G3, Item SPV.0060.0129; Type G4, Item SPV.0060.0130; Type G5, Item SPV.0060.0131; Type G6, Item SPV.0060.0132; Type G7, Item SPV.0060.0133; Type G8, Item SPV.0060.0134; Type G9, Item SPV.0060.0135; Type G10, Item SPV.0060.0136; Type G11, Item SPV.0060.0137; Type G12, Item SPV.0060.0138; Type G13, Item SPV.0060.0139; Type G14, Item SPV.0060.0140; Type G15, Item SPV.0060.0141; Type G16, Item SPV.0060.0142; Type G17, Item SPV.0060.0143; Type G18, Item SPV.0060.0144; Type G19, Item SPV.0060.0145; Type M1, Item

## SPV.0060.0150; Type M2, Item SPV.0060.0151; Type M3, Item SPV.0060.0152; Type M4, Item SPV.0060.0153; Type M5, Item SPV.0060.0154; Type M6, Item SPV.0060.0155.

**A Description**

This special provision describes constructing Concrete Barrier Transition (Type) in accordance to standard spec 603, details shown in the plans, and as hereinafter provided.

**B (Vacant)**

**C (Vacant)**

**D Measurement**

The department will measure Concrete Barrier Transition (Type) by each individual unit, acceptably placed in accordance to the contract.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0127 | Concrete Barrier Transition Type G1 | Each |
| SPV.0060.0128 | Concrete Barrier Transition Type G2 | Each |
| SPV.0060.0129 | Concrete Barrier Transition Type G3 | Each |
| SPV.0060.0130 | Concrete Barrier Transition Type G4 | Each |
| SPV.0060.0131 | Concrete Barrier Transition Type G5 | Each |
| SPV.0060.0132 | Concrete Barrier Transition Type G6 | Each |
| SPV.0060.0133 | Concrete Barrier Transition Type G7 | Each |
| SPV.0060.0134 | Concrete Barrier Transition Type G8 | Each |
| SPV.0060.0135 | Concrete Barrier Transition Type G9 | Each |
| SPV.0060.0136 | Concrete Barrier Transition Type G10 | Each |
| SPV.0060.0137 | Concrete Barrier Transition Type G11 | Each |
| SPV.0060.0138 | Concrete Barrier Transition Type G12 | Each |
| SPV.0060.0139 | Concrete Barrier Transition Type G13 | Each |
| SPV.0060.0140 | Concrete Barrier Transition Type G14 | Each |
| SPV.0060.0141 | Concrete Barrier Transition Type G15 | Each |
| SPV.0060.0142 | Concrete Barrier Transition Type G16 | Each |
| SPV.0060.0143 | Concrete Barrier Transition Type G17 | Each |
| SPV.0060.0144 | Concrete Barrier Transition Type G18 | Each |
| SPV.0060.0145 | Concrete Barrier Transition Type G19 | Each |
| SPV.0060.0150 | Concrete Barrier Transition Type M1 | Each |
| SPV.0060.0151 | Concrete Barrier Transition Type M2 | Each |
| SPV.0060.0152 | Concrete Barrier Transition Type M3 | Each |
| SPV.0060.0153 | Concrete Barrier Transition Type M4 | Each |
| SPV.0060.0154 | Concrete Barrier Transition Type M5 | Each |
| SPV.0060.0155 | Concrete Barrier Transition Type M6 | Each |

## 161. Concrete Barrier Type S32 End Anchor, Item SPV.0060.0160; S42 End Anchor, Item 0060.0162; S56 End Anchor, Item SPV.0060.0164; S56 Special End Anchor, Item SPV.0060.0166; S56A Special End Anchor, Item SPV.0060.0168.

**A Description**
This special provision describes constructing end anchorages for single slope concrete barrier in accordance to standard spec 603, details shown in the plans and as hereinafter provided.

**B (Vacant)**

**C Construction**
Construct the Concrete Barrier (Type) to present a smooth, uniform appearance in its final position conforming to the horizontal and vertical lines shown on the plans or ordered by the engineer, and be free of lumps, sags or other irregularities.

**D Measurement**
The department will measure Concrete Barrier (Type) End Anchor as each individual end anchor, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0160 | Concrete Barrier Type S32 End Anchor | Each |
| SPV.0060.0162 | Concrete Barrier Type S42 End Anchor | Each |
| SPV.0060.0164 | Concrete Barrier Type S56 End Anchor | Each |
| SPV.0060.0166 | Concrete Barrier Type S56 Special End Anchor | Each |
| SPV.0060.0168 | Concrete Barrier Type S56A Special End Anchor | Each |

Payment is full compensation for providing the barrier end anchor; for excavating and backfilling; for disposing of excess material; and for restoring the grade.

## 162. Section Corner Monuments Special, Item SPV.0060.0190.

**A Description**
Coordinate with Southeastern Wisconsin Regional Planning Commission (SEWRPC) for the perpetuation and replacement of a section corner (Public Land Survey System- PLSS) monument.

Contact the engineer and SEWRPC John Washburn at the contact information in this special provision at least two weeks prior to work near any section corner monument.

**B Materials**

SEWRPC will provide a pre-cast concrete monument or brass disk to be used to mark the PLSS corner.

Furnish base aggregate dense materials conforming to standard spec 305 and concrete, asphalt, topsoil or other materials depending on the surface surrounding the corner.

**C Construction**

SEWRPC will perpetuate existing section corner monument. The contractor is responsible to coordinate with SEWRPC and the WisDOT Project Manager throughout the perpetuation and replacement process. The engineer will contact SEWRPC at (262) 953-4295 at least two weeks before starting construction operations or the preconstruction meeting to allow for section corner monument perpetuation.

Excavate and completely remove the existing monument. Provide a backfilled 3 to 4 foot deep hole where existing monument was removed. Coordinate the materials and methodology to complete the construction of the surface surrounding the monument. This may include, but is not limited to, a 2-Foot x 2-Foot "box out" or 24-Inch diameter core hole in concrete, asphalt pavement/paving rings, coring to facilitate poured in place monuments, topsoil, seed and mulching or other materials or methodologies as agreed to by SEWRPC.

**Contact Information:**

Attn: John Washburn
Southeastern Wisconsin Regional Planning Commission
W239 N1812 Rockwood Drive
P.O. Box 1607
Waukesha, WI 53187-1607
Phone (262) 953-4295
Fax (262) 547-1103
E-mail: jwashburn@sewrpc.org

**D Measurement**

The department will measure Section Corner Monuments Special by the individual unit, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0190 | Section Corner Monuments Special | Each |

Payment is full compensation for furnishing all excavating; removal of existing monument, for placing and compacting backfill material; for disposing of surplus materials; for concrete or asphalt material, finishing of roadway or other surfaces and for furnishing all coordination with SEWRPC.

## 163. Pavement Marking Contrast Grooved Preformed Thermoplastic Arrows Type 2, Item SPV.0060.0302; Arrows Type 3, Item SPV.0060.0304; Arrows Type 4, Item SPV.0060.0306; Arrows Type 5, Item SPV.0060.0308; Words, Item SPV.0060.0310.

### A Description

This special provision describes grooving the pavement surface, and furnishing and installing contrast preformed thermoplastic pavement marking as shown on the plans, in accordance to standard spec 647 and as hereinafter provided.

### B Materials

Furnish 125 mils preformed thermoplastic pavement marking from the department's approved products list. If required, furnish sealant material recommended by the manufacturer.

### C Construction

#### C.1 General

For quality assurance, provide the engineer and the region's marking section evidence of manufacturer training in the proper placement and installation of preformed thermoplastic pavement marking.

Plane the grooved lines in accordance to the plan details. Use grooving equipment with a free-floating, independent cutting or grinding head. Plane a minimum number of passes to create a smooth groove.

#### C.2 Groove Depth

Cut the groove to a depth of 120 mils ±10 mils deep from the pavement surface or, if tined, from the high point of the tined surface. Measure depth using a straightedge placed perpendicular to the groove. The department may periodically check groove depths.

#### C.3 Groove Width – Linear Markings

Cut the groove 1-inch wider than the width of the thermoplastic.

#### C.4 Groove Position

Position the groove edge in accordance to the plan details.

#### C.4.1 Linear Marking

Groove at a minimum of 4-inches, but not greater than, 12-inches from both ends of the line segment. Achieve straight alignment with the grooving equipment.

#### C.4.2 Special Marking

Groove at a minimum of 4-inches from the perimeter of the special marking. Groove separate areas for Word Items.

### C.5 Groove Cleaning

#### C.5.1 Concrete

Cooling the cutting head with water may be necessary for some applications and equipment. If cooling water is necessary, flush the groove immediately with water after cutting to remove any build-up of cement dust and water slurry. If this is not done, the slurry may harden in the groove.

If water is used in the grooving process, allow the groove to dry a minimum of 24 hours after groove cleaning, after removal of excess water, and prior to pavement marking application. Clean and dry the groove for proper application of the sealant, and placement of the pavement marking. Use a high-pressure air blower with at least 185 $ft^3$/min air flow and 90 psi air pressure to clean the groove; use of the air blower does not decrease the amount of time required for the groove to dry.

#### C.5.2 Asphalt

Use a high-pressure air blower with at least 185 $ft^3$/min air flow and 90 psi air pressure to clean the groove.

Check for structural integrity in supporting grooving operations. If the structural integrity of the asphalt pavement is inadequate to support grooving operations, immediately notify the engineer.

### C.6 Preformed Contrast Thermoplastic Application

Preheat the surface if necessary based on manufacturer's recommendation.

Apply preformed thermoplastic in the groove as per manufacturer's recommendations. If manufacturer's recommendations require a sealant, apply a sealant lower than 91 g/l VOC during the following period of time due to Volatile Organic Compound Limitations:

May 1 to September 30, both dates inclusive – the Southeast Region and the ozone non-attainment Northeast Region counties of Sheboygan, Manitowoc, and Kewaunee.

Use any sealant in the remainder counties and for the remainder of the year. The sealant must be wet.

## D Measurement

The department will not measure Pavement Marking Contrast Grooved Preformed Thermoplastic Arrows (Type 2, Type 3, and Type 5). The department will use pay plan quantity according to the Pay Plan Quantity article.

The department will measure Pavement Marking Contrast Grooved Preformed Thermoplastic Arrows Type 4 and Pavement Marking Contrast Grooved Preformed Thermoplastic Words by each individual unit, acceptably completed.

**E Payment**

The department will pay for measured and plan quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0302 | Pavement Marking Contrast Grooved Preformed Thermoplastic Arrows Type 2 | Each |
| SPV.0060.0304 | Pavement Marking Contrast Grooved Preformed Thermoplastic Arrows Type 3 | Each |
| SPV.0060.0306 | Pavement Marking Contrast Grooved Preformed Thermoplastic Arrows Type 4 | Each |
| SPV.0060.0308 | Pavement Marking Contrast Grooved Preformed Thermoplastic Arrows Type 5 | Each |
| SPV.0060.0310 | Pavement Marking Contrast Grooved Preformed Thermoplastic Words | Each |

Payment is full compensation for cleaning and preparing the pavement surface, furnishing and installing the material.

## 164. Truck Cleanout of Pavement Marking Orange Epoxy, Item SPV.0060.0322

**A Description**

This special provision describes cleaning out the department furnished orange epoxy pavement marking materials from the pavement marking truck and equipment.

**B Materials**

**B.1 General**

Use only manufacturer's recommended materials.

**C Construction**

**C.1 General**

Clean orange epoxy materials from all equipment per the manufacturer's recommendations. Contain and properly dispose of all solvents and waste materials. Maintain proper ventilation.

**D Measurement**

The department will measure Truck Cleanout of Pavement Marking Orange Epoxy as each individual unit acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0322 | Truck Cleanout of Pavement Marking Orange Epoxy | Each |

Payment is full compensation for providing, transporting and properly disposing of all necessary materials and for removing all orange epoxy pavement marking materials from the pavement marking truck and equipment.

## 165. Traffic Control Close-Open Freeway Entrance Ramp, Item SPV.0060.0400.

**A Description**

This item shall consist of furnishing the labor and equipment required for closing and subsequently opening a freeway entrance ramp in accordance to standard spec 643, the plans, and as directed by the engineer. Drums, barricades and signs may remain along the roadway when the exit ramp is open to traffic. Signs shall not be visible to traffic when the ramp is open. Drums, barricades and signs will be paid for separately under the various traffic control items.

**B (Vacant)**

**C (Vacant)**

**D Measurement**

The department will measure Traffic Control Close-Open Freeway Entrance Ramp by each individual traffic control, close-open freeway ramp, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0400 | Traffic Control Close-Open Freeway Entrance Ramp | Each |

Payment is full compensation for furnishing the labor and equipment for closing and subsequently opening a freeway entrance ramp.

## 166. Traffic Control Close-Open Freeway to Freeway System Ramp, Item SPV.0060.0401.

**A Description**

This item shall consist of furnishing the labor and equipment required for closing and subsequently opening a freeway to freeway system ramp in accordance to standard spec 643, the plans, and as directed by the engineer. Drums, barricades and signs may remain along the roadway when the system ramp is open to traffic. Signs shall not be visible to traffic when the system ramp is open. Drums, barricades, lights, arrow boards and signs will be paid for separately under the various traffic control items.

**B (Vacant)**

**C (Vacant)**

**D Measurement**
The department will measure Traffic Control Close-Open Freeway to Freeway System Ramp by each individual traffic control, close-open freeway system ramp, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0401 | Traffic Control Close-Open Freeway to Freeway System Ramp | Each |

Payment is full compensation for furnishing the labor and equipment for closing and subsequently opening a freeway to freeway system ramp.

## 167. Traffic Control Interim Freeway Lane Closure, Item SPV.0060.0402.

**A Description**
This item shall consist of adjusting existing traffic control items that have previously been placed on the freeway for a lane closure, intended lane closure or are in position for staged construction as shown on the plans into position for an additional one, two or three lane closure, and for readjusting the traffic control items to their original state or position upon removal of the additional one, two or three lane closure within a 24 hour period. All work shall be in accordance to standard spec 643, the plans, and as directed by the engineer.

**B (Vacant)**

**C (Vacant)**

**D Measurement**
The department will measure Traffic Control Interim Freeway Lane Closure as each individual freeway one, two or three lane closure is setup and subsequently removed per direction of traffic within a 24-hour time period, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0402 | Traffic Control Interim Freeway Lane Closure | Each |

Payment is full compensation for furnishing the labor and equipment for setup and subsequent removal per direction of traffic within a 24-hour time period of a freeway one, two, or three lane closure.

## 168. Traffic Control Local Road Lane Closures, Item SPV.0060.0403.

**A Description**
This special provision describes furnishing the labor and equipment required for closing and subsequently opening a local road lane or lanes in accordance to standard spec 643, the plans, and as directed by the engineer.

**B (Vacant)**

**C Construction**
Drums and barricades may remain along the roadway when the local road is open to traffic. Handle signs according to the spec "Traffic Control Detour Signs Not in Use" when the local road is open.

**D Measurement**
The department will measure Traffic Control Local Road Lane Closures by each individual local road lane or two-lane closure that is set up and subsequently removed in each traffic direction within a 24 hour time period, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0403 | Traffic Control Local Road Lane Closures | Each |

Payment is full compensation for closing and subsequently opening a local road lane or lanes. Drums, barricades, lights, arrow boards and signs will be paid for separately under the various traffic control items.
SEF 15_0114

## 169. Temporary Sign Portable Support, Item SPV.0060.0405.

**A Description**
This special provision describes the construction of portable sign supports for fixed message signs as shown on the plans.

**B Materials**
Use lumber and hardware conforming to standard spec 507.

**C Construction**
Construct the Temporary Sign Portable Support in accordance to the detail on the plans.

**D Measurement**
The department will measure Temporary Sign Portable Support as each location, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item.

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0405 | Temporary Sign Portable Support | Each |

Payment is full compensation for furnishing, installing, and maintaining temporary sign portable supports; for removing the portable supports at the completion of the work.

## 170. Mobilizations Emergency Pavement Repair, Item SPV.0060.0406.

**A Description**
Furnish and mobilize personnel, equipment, traffic control, and materials to the project site to repair the existing pavement on an emergency basis as the engineer directs. An emergency is a sudden occurrence of a serious and urgent nature, beyond normal maintenance of the existing pavement.

**B (Vacant)**

**C Construction**
Mobilize with sufficient personnel, equipment, traffic control, materials and incidentals on the jobsite within 4 hours of the engineer's written order to repair the existing pavement on an emergency basis.

**D Measurement**
The department will measure Mobilizations Emergency Pavement Repair as each individual mobilization, acceptably completed. The department will not include delivering and installing pavement repair or maintenance materials provided for in specific contract bid items. All traffic control items used for each Mobilization will be considered incidental to the Mobilization.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0406 | Mobilizations Emergency Pavement Repair | Each |

Payment is full compensation for the staged moving of personnel, moving equipment, setting up and removing traffic control, traffic control materials, and moving materials. The department will pay separately for delivery and installation of pavement repair materials under the other bid items in this contract. The department will not pay separately for traffic control items and materials even though they may be included in other bid items in this contract and will consider them incidental to each Mobilization.
SEF Rev. 14_0319

## 171. Traffic Control Full Freeway Closure, Item SPV.0060.0408.

**A Description**
This item shall consist of furnishing the labor and equipment required for closing and subsequently opening the freeway accordance to standard spec 643, the plans, and as directed by the engineer. Drums, barricades and signs may remain along the outside edge of the freeway shoulder when the freeway is open to traffic. Signs shall not be visible to traffic when the freeway is open. Drums, barricades, lights, arrow boards and signs will be paid for separately under the various traffic control items.

**B (Vacant)**

**C (Vacant)**

**D Measurement**
The department will measure Traffic Control Full Freeway Closure by each individual freeway closure that is set up and subsequently removed in each traffic direction within a 24 hour time period, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0408 | Traffic Control Full Freeway Closure | Each |

Payment is full compensation for closing and subsequently opening the freeway. Drums, barricades, lights, arrow boards and signs will be paid for separately under the various traffic control items.

## 172. Maintaining Signs Fixed Message, Item SPV.0060.0410.

**A Description**
This special provision describes maintaining, and removing existing signs including all posts and sign supports in accordance to the pertinent provisions of standard spec 643, as shown on the plans and directed by the engineer.

The fixed message signs have been left in place under a previous contract. Assume ownership and responsibility of these items upon the contract's Notice to Proceed.

**B (Vacant)**

**C Construction**
Maintain traffic control signs fixed message in accordance to standard spec 643.3.2.

Remove signs, posts, fasteners, hardware and supports as directed by the engineer.

**D Measurement**
The department will measure Maintaining Signs Fixed Message by each individual unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0410 | Maintaining Signs Fixed Message | Each |

Payment is full compensation for maintaining, removing the signs including all posts, fasteners and necessary hardware and vertical supports; for partially or fully covering or uncovering signs covered under this bid item; and for restoring the work site.

## 173. Maintaining Traffic Control Covering Signs Type I, Item SPV.0060.0412.

**A Description**
This special provision describes maintaining and removing existing sign coverings in accordance to the pertinent provisions of standard spec 643, as shown on the plans and directed by the engineer.

The covered Type I signs have been left in place under a previous contract. Assume ownership and responsibility of these items upon the contract's Notice to Proceed.

**B (Vacant)**

**C (Vacant)**

**D Measurement**
The department will measure Maintaining Traffic Control Covering Signs Type I by each individual sign cover, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0412 | Maintaining Traffic Control Covering Signs Type I | Each |

Payment is full compensation for maintaining, removing covers, and for repairing or replacing damaged signs. Cover/uncover cycles required to accommodate the contractor's operations are incidental to the contract.

## 174. Permanent Barricades Type III, Item SPV.0060.0414.

**A Description**
This special provision describes furnishing barricades with "ROAD CLOSED" signs attached in accordance to the requirements of standard spec 643, as shown on the plans and as hereinafter provided.

**B Materials**
Provide new barricades with 8 foot rails to the project.

*Replace standard spec 643.2.1 (2) with the following:*

Use red and white reflective sheeting Type H from the departments approved products list on these barricades.

**C (Vacant)**

**D Measurement**
The department will measure Permanent Barricades Type III as each individual permanently installed 8-foot barricade, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0414 | Permanent Barricades Type III | Each |

Payment is full compensation for providing the barricades, posts, sleeves and associated signs and for maintaining the installation until the engineer accepts the work as specified in standard spec 105.11.

## 175. Sign Support Special Mounting, SPV.0060.0416.

**A Description**
This special provision describes installing special sign supports to the top or side of concrete barrier wall, as applicable, conforming to plan details, the pertinent provisions of standard spec 634 and as directed by the engineer.

**B Materials**
Furnish post material conforming to standard spec 634.

**C (Vacant)**

**D Measurement**
The department will measure Sign Supports Special Mounting for each individual special mounting, acceptably installed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0416 | Sign Supports Special Mounting | Each |

The payment is full compensation for providing, hauling, and placing posts; for providing all materials, including hardware and anchors.

## 176. Dynamic Speed Display Sign, Item SPV.0060.0420.

**A Description**

This special provision describes furnishing and installing dynamic speed display sign as shown in the plans, pertinent requirements of standard spec 637 and as hereinafter provided.

**B Materials**

**B.1 General**

The driver feedback sign shall be lightweight and easy to install, robust and reliable, highly visible, and designed in harmony with MUTCD sign specifications. The sign's design shall consist of a modular electronic control system that can easily be removed from the sign for simplified installation and repair. The sign shall display speeds of approaching vehicles. The flash rate should be between 50 and 60 cycles per minute.

Furnish dynamic speed display sign that is according to the pertinent requirements of standard spec 637.2. The LED display shall have a minimum of 18-Inch letters.

**B.2 Physical Specifications**

- The sign shall be 36-Inch x 48-Inch.
- Front face sheeting will have high visibility long life reflective sheeting.
- Static Message Legend "YOUR SPEED" in 6-Inch high MUTCD Highway Gothic characters.
- Sealed electronics 1/16-Inch thick with high impact ¼-Inch polycarbonate face and 1/8-Inch face plate, removes as a complete unit from the sign chassis for replacement.
- Padlocking mechanism included in design.

**B.3 LED Feedback**

- The LED numerals shall be 18-Inch high in true highway gothic font.
- LED ½ Cone Angle (1/2 power point) 15-Inch from on axis.
- Amber LED on Axis intensity is 20,000 CDA/SQ Meter, auto-dimming.
- 18-Inch MAX changeable display height, full matrix for graphics and 8-Inch tall "SLOW DOWN" messaging.

**B.4 Environmental**

- Electronics enclosure rated at NEMA 3R.
- Operating temperatures: Internal Components: -34 degrees C to +74 degrees C.
- Ambient Environment: -34 degrees C to +60 degrees C.
- Complies with FCC Part 15 for conducted/radiated EMI.

**B.5 Radar**

- The radar shall be a K-band 24.15MHz (+/-100MH) CW stereo Doppler, and is License Free 30-Degree FCC certified.
- Signal processing shall be accomplished using DSP with FFT speed and direction.
- Speed resolution and range shall be a minimum of 5 MPH and a maximum of 140 MPH in 1 MPH increments.

**B.6 Power Requirements**

DC Solar: 130W Solar Panel, 20A Charger with PWM charge control and load switch, 35AHx4 (140AH) battery in an insulated box.

**B.7 Manufacturer's Warranty**

The system shall be supported by a three year manufacturer's warranty.

**C Construction**

Install sign in accordance to the manufacturer's recommendations and standard spec 637.3.

Face solar panel south.

**D Measurement**

The department will measure Dynamic Speed Display Sign as each individual sign, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0420 | Dynamic Speed Display Sign | Each |

Payment is full compensation for providing, installing, maintaining and removing the signs, including posts, mounting hardware, solar power system and batteries, controller, radar unit, all other necessary items to make the proposed system complete.

## 177. Moving Dynamic Speed Display Sign, Item SPV.0060.0422.

**A Description**

This special provision describes moving dynamic speed display sign as shown in the plans, pertinent requirements of standard spec 638 and as hereinafter provided.

**B (Vacant)**

**C Construction**
Move sign in accordance to the manufacturer's recommendations and standard spec 638.3.

Face solar panel south.

**D Measurement**
The department will measure moving dynamic speed display sign as each individual sign, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0422 | Moving Dynamic Speed Display Sign | Each |

Payment is full compensation for furnishing all work required to move the dynamic display sign, related hardware and setup.

## 178. Gates Decorative HAST Ground Mounted 12-Foot, Item SPV.0060.0606; 30-Foot, Item SPV.0060.0608.

**A Description**
This special provision describes fabricating, galvanizing, painting, delivering and installing decorative gates along the Hank Aaron State Trail (HAST) mounted on the ground in accordance to the plans, the pertinent provisions of the standard specifications, and as hereinafter provided.

**B Materials**
**B.1 General**
Utilize only new materials meeting the requirements as shown on the plans and the applicable provisions of the standard specifications as follows:

- Caulk standard spec 502.2.9
- Structural Steel: standard spec 506.2.2
- Painting: standard specs 517.2 and 517.3
- Concrete standard spec 616.2.1
- Fabric Tie Wire standard spec 616.2.3.7

Galvanize steel corrugated foundation sleeves according to ASTM A 123.

Blast clean steel posts, rails and base plates prior to fabrication, per SSPC-SP 6 and galvanize according to ASTM A 123. Supply all bolts, nuts and washers as factory galvanized according to ASTM A 153. Repair zinc coating damaged during fabrication as specified in standard spec 513.3.3(3). Grind the welded joints shown in the plans to a smooth finish.

Steel preparation includes the chamfering of sharp edges. Flatten all sharp edges by a single pass of a grinder or suitable device along the sharp edge. Condition any thermal cut edges before blast cleaning by shallow grinding or other cleaning to remove any hardened surface layer. Remove all evident steel defects exposed in accordance to AASHTO M 160 prior to blast cleaning.

Use fence fabric conforming to standard spec 616.2.3 and woven of 9-gauge wire in 1-inch diamond pattern mesh with the top and bottom selvages knuckled. Provide PVC-coated ties conforming to AASHTO M181. Ensure that the color of all fencing components matches the color of the fence as specified in B.3.

Cover the fence fabric with a polymer-coating conforming to the following requirements:

| | |
|---|---|
| Thickness of Polymer-Coating: | ASTM F668 |
| Adhesion: | ASTM F668 |
| Accelerated Aging Test: | ASTM F668, D1499 |
| Mandrel Bend Test: | ASTM F668 |

Construct the polymer-coating of a dense impervious covering applied without voids, tears or cuts that reveal the galvanized mesh substrate. Visible roughness, bubbles, blisters and flaking in the polymer coating will be a basis for rejection. Utilize polymer-coating with color as specified in B.3 and conforming to the requirements of ASTM F934. Place the vertical wires of the mesh on the inside face (pedestrian / traffic side) of the fence.

**B.2 Painting**

Clean all galvanized surfaces to be painted per SSPC-SP1 to remove chlorides, sulfates, zinc salts, oil, dirt, organic matter and other contaminants. Then brush blast clean the cleaned galvanized surface per SSPC-SP7 to create a slight angular surface profile (1.0 - 1.5 mils suggested) for paint adhesion. Do not fracture the galvanized finish or remove any dry film thickness during the brush blast cleaning process.

After cleaning provide a tie coat from an approved coating system that is specifically intended to be used on a galvanized surface. The tie coat shall etch the galvanized surface and prepare the surface for the top coat. Apply a top coat matching the specified color. Utilize a contrasting color for the tie and top coats. Use a pre-approved top coat that is resistant to the effects of the sun, and is suitable for use in a marine environment. Paint the various decorative gate components with the tie and top coats before final assembly of the gate. Do not damage the painted surface during gate assembly or installation.

Use one of the qualified paint sources and products given below. An equivalent system may be used with the written approval of the engineer.

| Producer | Coat | Products | Dry Film Minimum Thickness (mils) | Minimum Time Between Coats (hours) |
|---|---|---|---|---|
| Sherwin Williams<br>1051 Perimeter Drive,<br>Suite 710<br>Schaumburg, IL 60173<br>(847) 330-1562 | Tie | Recoatable Epoxy Primer B67-5 Series/B67V5 | 2.0 to 4.0 | 6 |
| | Top | Acrolon 218 HS Polyurethane, B65-650 | 2.0 to 4.0 | NA |
| Carboline<br>350 Hanley Industrial St.<br>Louis, MO 63144<br>(314) 644-1000 | Tie | Rustbond Penetrating Sealer FC | 1 | 36 |
| | Top | Carboline 133 LH | 4 | NA |
| Wasser Corporation<br>4118 B Place NW<br>Suite B<br>Auburn, WA 98001 | Tie | MC-Ferrox B 100 | 3.0 to 5.0 | 8 |
| | Top | MC-Luster 100 | 2.0 to 4.0 | NA |

**B.3 Color**
Match Federal Color 27038 – Black, for the finished color for the coating system for decorative gate.

**C Construction**
Provide shop drawings in accordance to the requirements of standard spec 506.3.2. Provide shop drawings containing material sizes and types, weld sizes and locations, and all necessary details, dimensions, and information to allow fabrication of the gate in conformance with the requirements of the contract. Obtain shop drawing review and acceptance prior to beginning fabrication.

During construction and at the time of delivery the engineer will inspect the frame components. Obtain engineer acceptance of the product after the delivery is unloaded on the site. After the product is unloaded, signify in writing that the fence was received in acceptable condition per the engineer's inspection. Any damage to the fence panels after the acceptable delivery will be the responsibility of the installation contractor.

Conform all welding to the applicable requirements of standard spec 506. Obtain the approval of the engineer prior to any field welding, field cutting, or drilling.

Minimize the number and size of touch-up spots during construction. Follow the manufacturer's recommendations for damaged area repairs. Final acceptance will not be granted without engineer approval of the field paint appearance.

Provide the engineer with the name, address, and phone number of a representative of the gate fabricator for future coordination.

During handling, protect finish coating from damage. If damaged during handling, the fencing may be rejected by the engineer or engineer may direct the fabricator to repair the finish in accordance to the manufacturer's recommendations. Provide the engineer a copy of the manufacturer's recommended repair procedure and materials before repairing damaged coatings.

Set ground mounted post as shown in the plans and according to standard spec 616.3.3.2.

Erect fence fabric according to standard spec 616.3.3.3.

**D Measurement**
The department will measure Gate Decorative HAST Ground Mounted by each gate, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0606 | Gate Decorative HAST Ground Mounted 12-Foot | Each |
| SPV.0060.0608 | Gate Decorative HAST Ground Mounted 30-Foot | Each |

Payment is full compensation for cleaning, galvanizing, welding, fabricating, polymer-coating woven wire fabric, painting, assembling, furnishing, delivering and installing gate components, excavating or installing foundation post sleeves, concrete post foundations; for preparing shop drawings and for repairing zinc coating or damaged areas.

## 179. Lamp Disposal High Intensity Discharge, Item SPV.0060.1010.

**A Description**
This special provision describes the packaging and delivering of high intensity discharge (mercury vapor, metal halide, and high-pressure sodium) lamps removed under this contract to the department for disposal as hazardous materials.

**B Materials**
Lamps turned in to the department will be considered the property of the department for proper future disposal, and the contractor will have no further obligation for their disposal.

**C Construction**
Pack intact lamps in the packaging of the new lamps used to replace them, or packaging affording the equivalent protection. Place in full, stackable cartons with the name of the contractor written on each carton. Segregate the lamps by type and wattage. Label each carton by the type and wattage contained (do not mix) and the quantity.

Pack broken lamps into thick plastic bags and place inside sturdy cardboard boxes or the equivalent. Mark the outer packaging with the term "broken lamps". Deliver all broken lamps to the department.

The department will not accept lamps improperly packaged or packed in metal containers. The department will reject any lamps not removed as part of this contract as shown on the plans.

Pile cartons no more than two high if palletized and secure them to prevent shifting or falling of the loads.

Deliver the lamps to the department at the South 60th Street office in West Allis. Consolidate all deliveries into a truckload or more, except when all the lamps removed under a contract measure less than a truckload, deliver as one load at one time. Contact Mike Prebish at (414) 266-1170, Monday through Thursday from 8:00 AM to 4:00 PM to set up an appointment for delivery.

**D Measurement**

The department will measure Lamp Disposal High Intensity Discharge as each individual unit delivered to the department properly packaged and delivered. The department will not measure broken lamps that exceed a total of ten percent of all lamps to be delivered.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1010 | Lamp Disposal High Intensity Discharge. | Each |

Payment is full compensation for handling, packaging, labeling and delivering the lamps.

Payment will be in addition to payment for the work under which the lamps are removed from service.

## 180. Relocating Light Poles Arms and Luminaires, Item SPV.0060.1019.

**A Description**

This special provision describes removing lighting pole, arm and luminaires and reinstalling pole at a new location in accordance to pertinent provisions of standard specs 204, 655 and 659, as shown in the plans or delivering the units to a specific location.

**B (Vacant)**

**C Construction**

Inspect the pole prior to removing from the existing base. Inform the engineer of any items of concern or potential problems that may interfere with the reuse of the pole, arm or luminaire. Minimize the time between removal from the existing base and reinstallation on the new base. Bases will be paid as a separate item and are not included herein. Replace

the existing bulb with a new one of the same type if the luminaire is not an LED type. The existing bulb, if HID, is to be returned to the DOT under Bid Item Lamp Disposal High Intensity Discharge.

**D Measurement**
The department will measure Relocating Light Poles Arms and Luminaires by each individual light pole, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1019 | Relocating Light Poles Arms and Luminaires | Each |

## 181. Removing Aluminum Light Poles and Arms - Wauwatosa, Item SPV.0060.1031.

**A Description**
The work under this item shall consist of removing aluminum light poles and arms as shown on the plans. The luminaires shall be removed and turned over to the City of Wauwatosa. The concrete base removal will be under a separate bid item.

**B (Vacant)**

**C Construction**
Dispose of all materials offsite. Coordinate the delivery of the luminaire to the City of Wauwatosa with Mr. Bill Wehrley, (414) 479-8929.

**D Measurement**
The department will measure Removing Aluminum Light Poles and Arms as each individual pole and associated arms, acceptably removed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1031 | Removing Aluminum Light Poles and Arms - Wauwatosa | Each |

Payment is full compensation for furnishing all work and disposal of material.

## 182. Removing Concrete Light Poles and Arms - Wauwatosa, Item SPV.0060.1032.

**A Description**
The work under this item shall consists of removing concrete light poles and arms as shown on the plans. The luminaires shall be removed and turned over to the City of Wauwatosa. The concrete base removal will be under a separate bid item.

**B (Vacant)**

**C Construction**
Dispose of all materials offsite. Coordinate the delivery of the luminaire to the City of Wauwatosa with Mr. Bill Wehrley, (414) 479-8929. Backfill the resulting hole from the pole extraction with a suitable material for the location.

**D Measurement**
The department will measure Removing Concrete Light Poles and Arms as each individual pole and associated arms, acceptably removed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1032 | Removing Concrete Light Poles and Arms - Wauwatosa | Each |

Payment is full compensation for furnishing all work and disposal of material.

## 183. Removing Aluminum Light Poles, Arms and Luminaires, Item SPV.0060.1033.

**A Description**
The work under this item consists of removing aluminum light poles, arms and luminaires as shown on the plans. The concrete base removal will be under a separate bid item. The disposal of the lamps will be paid under a separate bid item Lamp Disposal High Intensity Discharge. Concrete bases are removed under a separate bid item.

**B (Vacant)**

**C Construction**
Dispose of all materials offsite. Do not disable the lighting unit until the temporary lighting system over the area is operational.

**D Measurement**
The department will measure Removing Aluminum Light Poles, Arms, and Luminaires as each individual pole and associated arms, acceptably removed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1033 | Removing Aluminum Light Poles, Arms and Luminaires | Each |

Payment is full compensation for furnishing all work and disposal of material.

## 184. Wood Pole Lighting 60-Foot, Item SPV.0060.1035.

**A Description**

The work under these items include furnishing and installing 60-foot wood pole, arm(s) and floodlight(s), junction box, grounding system, and lightning protection system, as shown on the plans, in accordance to standard specs 651 and 659, and as hereinafter provided.

**B Materials**

Furnish wood poles, Class 4 or larger with a 60-foot minimum overall length. The poles shall be western red cedar in accordance to ANSI standards 05.1. Pressure treatment shall be 5% pentachlorophenol with a minimum of 8 pounds per cubic foot net retention of the oil-borne preservative. All poles shall be shaved the entire length.

Luminaire for wood pole lighting units and temporary wood pole lighting units shall be per standard spec 659.2.

Floodlight mounting bracket arms for wood pole lighting units will be as shown on plan details. The floodlights are provided under separate bid items.

**C Construction**

This work shall be done in accordance to the pertinent provisions of standard spec 661.3.1.1 and as shown on the plans. Install #4 AWG equipment grounding wire exothermically bonded to a 5/8 inch by 8 foot copper clad grounding electrode. Install cable guard, NEMA 3R junction box near mounting arm, and NEMA 4X junction box at 3 feet above grade for fuses and splice on wood pole units. Install air terminal with #2 AWG grounding wire exothermically bonded to a 5/8-inch by 8-foot copper clad grounding electrode for lightning protection. Install #2 AWG bare copper exothermically bonding between grounding electrodes. Install conduit and wiring between junction boxes, wire racks, and required hardware as necessary and as shown on lighting plans and detail drawings.

Install luminaire arm for wood pole lighting units as shown on the plans and details and as per applicable portion of standard specs 657.3 and 659.3.

**D Measurement**

The department will measure Wood Pole Lighting 60-Foot as a unit for each individual item, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1035 | Wood Pole Lighting 60-Foot | Each |

Payment is full compensation for furnishing and installing items as mentioned above; for furnishing all excavation and backfill.

## 185. Poles Wood 60-Foot, Item SPV.0060.1036.

**A Description**

Furnish and install wood poles and other incidental items as required and as shown on the plans, in accordance to standard spec 651, and as hereinafter provided.

**B Materials**

Furnish wood poles that are Class 4 or larger with a 60-foot minimum overall length. The poles shall be western red cedar in accordance to ANSI standards 05.1. All poles shall be shaved the entire length.

Wood poles used for freeway lighting shall be pressure treated with a 5 percent pentachlorophenol mixture with a minimum of 8 pounds per cubic foot net retention of the oil-borne preservative.

**C Construction**

Install the pole in accordance to the pertinent provisions of standard spec 661.3.1.1, and as shown on the plans. As necessary, install #4 AWG grounding wire exothermically bonded to a 5/8-inch by 8-foot copper clad grounding electrode, cable guard, NEMA 3R junction box 3ft above grade level for splice, and incidentals as necessary.

**D Measurement**

The department will measure Poles Wood 60-Foot as a unit for each individual pole, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1036 | Poles Wood 60-Foot | Each |

Payment is full compensation for furnishing and installing a wood pole; and for furnishing all excavation and backfill.

## 186. Poles Wood 35-Foot, Item SPV.0060.1037.

### A Description

Furnish and install wood poles and other incidental items as required and as shown on the plans, in accordance to standard spec 651, and as hereinafter provided.

### B Materials

Furnish wood poles that are Class 4 or larger with a 35-foot minimum overall length. The poles shall be western red cedar in accordance to ANSI standards 05.1. All poles shall be shaved the entire length.

Wood poles used for freeway lighting shall be pressure treated with a 5 percent pentachlorophenol mixture with a minimum of 8 pounds per cubic foot net retention of the oil-borne preservative.

### C Construction

Install the pole in accordance to the pertinent provisions of standard spec 661.3.1.1, and as shown on the plans. As necessary, install #4 AWG grounding wire exothermically bonded to a 5/8-inch by 8-foot copper clad grounding electrode, cable guard, NEMA 3R junction box 3ft above grade level for splice, and incidentals as necessary.

### D Measurement

The department will measure Poles Wood 35-Foot as a unit for each pole, acceptably completed.

### E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1037 | Poles Wood 35-Foot | Each |

Payment is full compensation for furnishing and installing a wood pole; all excavation and backfill.

## 187. Removing Poles Wood 60-Foot and Floodlights, Item SPV.0060.1040.

### A Description

Remove 60-foot wood pole lighting units and attached conduit and wiring as shown on the plans and in accordance to standard spec 204, remove mast arm or bracket arm, luminaire, air terminal, and junction box, backfill openings or holes to the elevation of the surrounding ground, and landscape all disturbed areas from these removals.

### B (Vacant)

### C Construction

Dispose of all materials except lamps outside of right-of-way. Deliver the lamps to the department under a separate bid item, Lamp Disposal High Intensity Discharge.

The department will allow, at the contractor's discretion, to reuse removed wood pole lighting units at new locations, if possible. The bid price is to reflect the salvage value of the removed wood pole lighting unit. The department will allow, at the contractor's discretion, to reuse removed temporary wood pole lighting units at new locations, if possible.

**D Measurement**
The department will measure Removing Poles Wood 60-Foot and Floodlights by each individual unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1040 | Removing Poles Wood 60-Foot and Floodlights | Each |

Payment is full compensation for removing wood pole lighting units; all excavation and backfill; removal and disposal of material; and for restoring the site. Separate payment will be made for lamp disposal.

## 188. Removing Poles Wood 60-Foot, Item SPV.0060.1041.

**A Description**
This special provision describes removing 60-foot wood poles as shown on the plans.

**B (Vacant)**

**C Construction**
In addition to removing the attached conduit and wiring in accordance to standard spec 204, backfill all openings or holes to the elevation of the surrounding ground, and landscape all disturbed areas from these removals. Dispose of all materials outside of right-of-way.

**D Measurement**
The department will measure Removing Poles Wood 60-Foot as a unit for each pole, acceptably removed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1041 | Removing Poles Wood 60-Foot | Each |

Payment is full compensation for removing wood pole; all excavation and backfill; removal and disposal of material; and for restoring the site.

## 189. Removing Poles Wood 35-Foot, Item SPV.0060.1042.

### A Description

This special provision describes removing 35-foot wood poles as shown on the plans.

### B (Vacant)

### C Construction

In addition to removing the attached conduit and wiring in accordance to standard spec 204, backfill all openings or holes to the elevation of the surrounding ground, and landscape all disturbed areas from these removals. Dispose of all materials outside of right-of-way.

### D Measurement

The department will measure Removing Poles Wood 35-Foot as a unit for each pole, acceptably removed.

### E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1042 | Removing Poles Wood 35-Foot | Each |

Payment is full compensation for removing wood pole; all excavation and backfill; removal and disposal of material; and for restoring the site.

## 190. Removing Poles Wood 35-Foot and Floodlights, Item SPV.0060.1043.

### A Description

Remove 35-foot wood pole lighting units and attached conduit and wiring as shown on the plans and in accordance to standard spec 204, remove mast arm or bracket arm, luminaire, air terminal, and junction box, backfill openings or holes to the elevation of the surrounding ground, and landscape all disturbed areas from these removals.

### B (Vacant)

### C Construction

Dispose of all materials except lamps outside of right-of-way. Deliver the lamps to the department under a separate bid item, Lamp Disposal High Intensity Discharge.

The department will allow, at the contractor's discretion, to reuse removed wood pole lighting units at new locations, if possible. The bid price is to reflect the salvage value of the removed wood pole lighting unit. The department will allow, at the contractor's discretion, to reuse removed temporary wood pole lighting units at new locations, if possible.

**D Measurement**

The department will measure Removing Poles Wood 35-Foot and Floodlights by each individual unit, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1043 | Removing Poles Wood 35-Foot and Floodlights | Each |

Payment is full compensation for removing wood pole lighting units; all excavation and backfill; removal and disposal of material; and for restoring the site. Separate payment will be made for lamp disposal.

## 191. Tunnel Luminaire, Item SPV.0060.1050.

**A Description**

This special provision describes furnishing and installing dimmable LED tunnel luminaires at the positions shown in the plan for both tunnel B-40-850 and B-40-858.

**B Materials**

**B.1 Luminance and Illuminance Requirements**

**B.1.1 Tunnel B-40-850**

- Tunnel length = 205’
- Exit portal is visible from the entrance portal
- 50 MPH
- SSSD = 425’
- Greater than 15,000 ADT
- No bicyclists
- Poor daylight penetration
- Poor wall reflectance
- Ceiling reflectance will be minimal due to 36” bridge girders
- Adjustment factor Table 2 of RP-22-96 = 50%
- Driver faces West
- Table 3 of RP-22-96 = 240 cd/sq m
- Minimum luminance = 240 x 50% = 120 cd/sq m
- Circuit H of lighting control cabinet HL-40-ZC is the designated for night lighting. The three luminaires on this circuit shall provide an illuminance of less than 0.6 Ave maintained FC at the minimum dimming setting and greater than 2.0 Ave maintained FC at full brightness.

- Luminaires can only be mounted on the wall cap of retaining wall R-40-507 which is 12” wide on top and 2’-0” high. This wall is on the passenger side of the tunnel. Luminaires CANNOT be mounted neither on the face of the MSE retaining wall nor on the driver’s side of the tunnel. Brackets are detailed allowing mounting of 2 brackets per “girder pocket” with 2 luminaires per bracket (total 21 “girder pockets). These brackets are secured to the top of the retaining wall cap. Additional luminaires can be mounted upon the face of the retaining wall cap of wall R-40-507 (2’-0” H).

**B.1.2 Tunnel B-40-858**

- Tunnel length = 231’-6”
- Exit portal is visible from the entrance portal
- 50 MPH
- SSSD = 425’
- Greater than 15,000 ADT
- No bicyclists
- Poor daylight penetration
- Poor wall reflectance
- Ceiling reflectance will be minimal due to 36” bridge girders
- Adjustment factor Table 2 of RP-22-96 = 50%
- Driver faces North
- Table 3 of RP-22-96 = 280 cd/sq m
- Minimum luminance = 280 x 50% = 140 cd/sq m
- Circuit H of lighting control cabinet HL-40-ZD is the designated circuit for night lighting. The four luminaires on this circuit shall provide illuminance of less than 0.6 Ave maintained FC at the minimum dimming setting and greater than 2.0 Ave maintained FC at full brightness.
- Luminaires are to be wall mounted on only the East wall (passenger side) in 2 rows. Luminaires cannot be mounted on the West wall (driver’s side).

**B.1.3 Photometric Evaluation**

Photometric layout files will be available from the DOT when plans are made available. Contact Eric Perea at (262) 574-5422. Photometric layout files are based upon AGI32 version 15.3.17. The results of the photometric analysis are a required shop drawing as both an AGI file and in a PDF format.

**B.2 Material Qualifications**

Furnish a complete list of documentation in accordance to standard spec 651.2.

One example luminaire matching what is proposed for use on the project. Example luminaire shall be available for evaluation for up to two weeks time. Furnish the following list of specific documentation detailing the characteristics of the LED luminaire:

- Fixture IES files (.ies format) for illumination modeling.
- Cut sheets, warranty information and parts list for all equipment.
- Luminaire heat dissipation techniques.
- Energy usage information.
- Color spectrum with HID lamp comparison.
- Optical design features.
- Two references from municipalities currently using the same luminaires.

Do not order materials until the engineer approves the list.

**B.3 Luminaire**

Tunnel Luminaire shall be specifically manufactured and tested for tunnel type applications. Luminaire housing shall be die cast from low copper content A360 aluminum with integral heat fins to optimize thermal management through convective and conductive cooling. Housing shall be designed for either wall or ceiling mounting using heavy duty stainless steel brackets. Housing shall have three ¾" NPT threaded entries for connecting with conduit raceway.

Luminaire door shall be completely sealed using a silicone gasket and secured by minimum 6 stainless steel latches or Alloy 410 stainless steel bolts with captive zinc-plated fasteners. Housing door shall be equipped with two internal hinges for easy access to internal components including drivers, surge protection, LED arrays, quick disconnect plugs and high and low voltage terminal blocks. Luminaire door shall encase prismatic borosilicate glass lens.

Complete assembly shall be tested to withstand 3G vibration per ANSI C136.31-2001 and shall be rated IP66 per IEC60529. Additionally luminaire shall pass a High Pressure Water Spray Test where the spray apparatus consists of four spraying nozzles each providing a minimum of 12 gallons per minute at 100 PSI at the nozzle, in a 90-degree cone. Spray shall be applied for 30 minute intervals on surface containing photometric nadir and directly at electrical entry or access points. The test data and results shall be completed in writing and shall be submitted to the engineer for review and acceptance.

**B.4 Electronic Components**

Class 1 Drivers shall be rated for 100,000 hours life and shall be dimming type for 0-10v control signal. Dimming output shall be controllable between 10-100% of nominal. Low voltage terminal block shall provide for landing incoming as well as outgoing signal cable. Driver power factor shall be minimum 90% and maximum total harmonic distortion shall be 20%. Supply power voltage will be 277V.

Surge Protection shall meet 10KV\5KA per ANSI IEEE\C62.41

The luminaire shall have an approximate physical size of 2'-0" W X 1'-6" D. Other sizes would be allowed if it can be demonstrated that all luminaires can be mounted per the above physical constraints.

**B.5 Optical / Illumination Performance**
Luminaire shall conform to the following:

- Luminaire tested and certified by an independent test laboratory to meet the photometric performance criteria established by IESNA LM-79-08.
- Luminaire shall deliver approximately 30,200 lumens minimum and be rated to consume no more than 370 watts maximum while operating for a minimum (L70) of 100,000 hours (+/- 10%).
- Maximum nominal drive current of 1050 Ma.

**B.6 Finish**
Luminaire housing shall be anodized and then finish coated with Super durable TGIC thermo set powder in gray color. Finish shall exceed 5000 hour salt fog test per ASTM B117 and D1654. Alternative equivalent finishes shall be approved by the engineer.

**B.7 Ratings / Certifications**
Luminaires shall be rated and/or certified as follows:

- IP-65 minimum weather fastness rating
- IDA dark sky full cutoff compliant
- IEC 61000 - Electromagnetic Compatibility Test (EMC)
- FCC Title 47 CFR Part 18 – Federal Communication Commission
- ANSI\IEEE\C62.41
- IEEE 519 – Harmonic Control in Electrical Power Systems
- ANSI C82.77:2002 Harmonic Distortion
- ANSI C136.31:2001 – Luminaire Vibration
- ASTM B 117:2003 – Salt Spray Test
- IEC 60529 – Degrees of protection provided by enclosure
- UL 1598 – UL Wet Location @ 40C
- ROHS compliance for key components

**B.8 Dimming**
Luminaires shall be capable of being dimmed from 100% output down to 10% output. Dimming control can be wired or wireless. If wireless control can be demonstrated and subsequently utilized, the dimming wireway, dimming control wire and liquidtight flexible conduit associated with the dimming wire connection to the luminaires can be removed from the contract. Dimming control shall be coordinated with the two lighting control cabinets HL-40-ZC for tunnel B-40-850 and cabinet HL-40-ZD for tunnel B-40-858.

**C Construction**
Install Tunnel Luminaire in accordance to the pertinent provisions of standard spec 659 and as the manufacturer directs.

**D Measurement**
The department will measure Tunnel Luminaire as each individual LED tunnel luminaire, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1050 | Tunnel Luminaire | Each |

Payment is full compensation for furnishing all materials; installing a complete luminaire; for furnishing all documentation, labor, tools, equipment, and incidentals necessary to complete the contract work.

## 192. Lighting Control Cabinet Tunnel Lighting, Item SPV.0060.1051.

**A Description**

This special provision describes furnishing and installing 100 Ampere, 277/480 VAC, 3 phase lighting distribution centers to be used for tunnel lighting as shown on the plans, in accordance to standard specs 651 and as hereinafter provided. To the extent possible, provide components from the same manufacturer. Electrical services will be measured and paid separately. The concrete pad for the cabinet is included in this bid item. Provide two NEMA decals reading DANGER 480 VOLTS per installation, one for the meter pedestal and one for the cabinet door. Provide an Arc-Flash Hazard Warning decal in accordance to Article 110.16 of NFPA 70. Decals are incidental to the lighting control cabinet. The dimming control aspects of this cabinet shall be coordinated with Tunnel Lighting.

**B Materials**

**B.1 General**

Furnish, deliver and install Lighting Control Cabinet Tunnel Lighting. to the project site. Unit shall be similar to the 240/480VAC, 1 phase distribution cabinet as listed in the department Qualified Product List but with the following exceptions and as noted below:

1. Incoming power to be 480Y/277V, 3 phase, 100A
2. Utility meter to be 3 phase and of the model and type approved by WE-Energies.
3. Surge protection device to be 3 phase
4. Main breaker to be 100A/3Pole
5. Branch circuit breakers for lighting to be 30A/1Pole
6. Lighting contactors to be 3 pole with 277V coils
7. Step-down transformer to be 277V/120V
8. All lighting circuits to be 4-wire (L1,L2,L3,N) plus ground.
9. Luminance meter for luminaire control
10. ON-OFF and Dimming control

Notify the department lighting engineer, Mr. Eric Perea, (262) 548-5921, for approval before installation.

**B.2 Contactors**

The contactors shall be electrically held, specification grade, three-pole, with 30A contacts. Provide 1-Inch high engraved plaque above each contactor indicating the circuit number in ½" text as appropriate.

**B.3 Illuminaince Meter**
Provide openings on the side and back of housing to allow proper photo-sensor/luminance meter operation. The photo-sensor/luminance meter shall be a linear photodiode or other type designed specifically for tunnel lighting control and suitable for outdoor use. The photo sensors shall have an operating range of 10 footcandles to 10,000 footcandles. Sensor sensitivity shall be adjustable

**B.4 HOA Switch**
Provide a hand-off-auto switch that is accessible without opening dead-front door.

**B.5 Panelboards**
Provide a specification grade panelboard interior, Square D type NQ or equal. The panel shall be rated, sized, and configured as indicated on the attached drawings. Provide copper bus bars and copper ground and neutral bus bars. Provide thermal-magnetic circuit breakers that clearly indicate ON, OFF, or TRIPPED position in the panel.

Provide a separate or back-fed main circuit breaker.

**B.6 Enclosures**
The cabinet shall be of NEMA Type 3R rainproof construction and shall be UL listed as "Enclosed Industrial Control Equipment" (UL 508A). External construction shall comply with UL50 requirements. Cabinet dimensions shall be as indicated on the attached drawings. The minimum size enclose is 17-Inch deep x 30-Inch wide with a minimum height of 48 inches and a maximum height of 60 inches. The concrete pad is included as part of this bid item. The minimum pad width is 40 inches in accordance to drawing S.D.D. 9 C 14-2 for an L30 base. The panel shall be increased in width as necessary to adequately house a devices therein. The concrete pad shall correspondingly be increased.

Cabinet exterior shall be fabricated from 1/8-Inch clear anodized 5052-H32aluminum.

All fasteners, latches and hardware shall be of stainless steel and all hinges shall be continuous piano type. No fasteners except sealing screws shall be removable by external access.

All edges and corners on both exterior and interior must be rounded and smooth to prevent injuries.

The distribution equipment compartment shall be behind an external lockable door with standard #2 key locking mechanism. A door keeper shall be provided to keep the door in the open position. Electrical equipment shall be located behind an internal dead-front door with a quarter turn securing latch and hinged to open a minimum of 120 degrees. The dead-front door shall be hinged on the same side as the customer door.

A metal print pocket shall be located on the inside of the customer door large enough to hold all circuit directories and instructions in a clear plastic 8-Inch x 10-Inch weatherproof sleeve.

The cabinet mounting bolts shall not be externally accessible. Cabinet can be mounted to a concrete base with use of stainless steel anchors.

Cabinet shall be rated for operation at 22k minimum AIC amps interrupting. Series rating is acceptable.

All distribution and control equipment shall be factory wired using 600 volt wire.

Cabinet dimensions shall be as indicated on the attached drawings.

**B.7 Field Wiring Termination Blocks**

Provide quantity of channel mount NEMA rated, box lug, single terminal blocks as indicated on plans that are capable of holding #12 to #2 wire for power, neutral, and grounding connections. The terminal blocks shall be mounted on a mounting channel with end anchors and an end barrier. Each terminal block shall have a label indicating the appropriate circuit number, neutral ('N') or ground ('G') wire connected to block; handwritten numbers and letters are not acceptable means of identification.

**B.8 Surge Protection Devices (SPD)**

SPD for 277/480V 3-Phase Power: Install a Type 1 SPD on distribution panelboard on the load side of a dedicated 3-pole, 30A circuit breaker.

SPDs shall be UL Listed and labeled to UL 1449 Third Edition. SPDs shall be posted on VZCA at UL.com.

The following ratings shall not be exceeded on any mode of protection:

- Short Circuit Current Rating (SCCR): 200kA or the available short circuit current, whichever is greater
- Nominal Discharge Current Rating (In): 20kA
- Voltage Protection Rating (VPR): 700V
- Maximum Continuous Operating Voltage (MCOV): 150V
- Peak surge current rating: 50kA per phase (sum of L-N plus L-G)

SPDs shall include directly connected MOVs exceeding 32mm in diameter from L-N and either L-G, N-G, or both. SPD shall at a minimum be rated as NEMA 1.

**B.9 Cabinet Appurtenances**

The stepdown transformer shall be 1.5KVA, single phase, 60Hz, encapsulated, NEMA 1 rated and UL listed. The primary voltage shall be 277V and secondary voltage shall be 120V with 5% tapping. The transformer shall be capable of mounting inside the cabinet.

SPST, 20 amp switch for the door shall be single pole single throw type heavy duty, temper resistant, rated for 125V, UL listed.

The incandescent lighting fixture shall be enclosed, gasketed and wet location rated with 60Watt, 120V lamp, UL listed.

Control breaker shall be 15 amp, single pole 120V, bolt on, UL listed. The circuit breaker shall have 10K AIR rating at 120V, terminal for minimum wire size 14 AWG and maximum wire size 8 AWG.

**B.10 Color Coding of Wiring Within the Enclosure**

The color coding within the panel shall be:

| | | |
|---|---|---|
| 480V- | L1 | Brown |
| | L2 | Orange |
| | L3 | Yellow |
| | N | Gray |
| | Gnd | Green or bare |
| | | |
| 120V- | L1 | Black |
| | N | White |
| | Gnd | Green or Bare |

**B.11 Tunnel Luminaire Control**

All luminaires per tunnel shall be controlled in an identical fashion except the night circuit. The three 3 Phase circuits in HL-40-ZC and the four 3 Phase circuits for HL-40-ZD shall act as one luminaire respectively, i.e. all luminaires shall be dimmed identically. The night circuit shall be dimmed to a preset level determined during the cabinet startup. The level shall be adjustable but once set shall stay at that dimming level until a technician readjusts. Automatic dimming of the night circuit is not required. Automatic dimming of the remaining luminaires for day time operation (all circuits except Circuit H) is required. Daytime circuits shall be turned off at night time. If the dimming controls utilize a data gateway located in the tunnel, provide suitable communications wiring back to the control cabinet to allow readjustment of the dimming control without shutting the tunnel to traffic. Tunnel lighting control will not extend to locations beyond the respective control cabinet.

Provide documentation that the supplier of the tunnel lighting control cabinet and the tunnel luminaire suppliers have coordinated the control aspects of the system.

**C Construction**

Use a UL 508 Listed Panel Builder to assemble the lighting control cabinet. Assemble the lighting control cabinet with all of its electrical components, wiring and parts in a neat and orderly fashion and as shown on the plans. Pretest the cabinet prior to shipment to the site. Panel Builder shall apply UL label inside cabinet.

Mount all equipment to panel in enclosure. Train the cables in straight horizontal and vertical directions, and parallel next to, and adjacent to other cables whenever possible.

Install wiring in slotted raceway between terminal strip, contactor and panelboard. Secure all remaining wiring using screw attachment type straps; adhesive type will not be allowed.

Surge arresters shall be installed to allow LED indicator(s) to be readily visible when viewing inside of cabinet. Connect the surge arresters as indicated on the plans.

Minimum size wiring within panel to be #12 AWG or as required based upon the overcurrent protection.

Provide a qualified technician to perform the startup of the unit. The startup procedure shall demonstrate that the control system can turn ON-OFF the luminaires and vary the lumen output based upon varying ambient light levels. The technician shall preset the dimming required for the night circuit such that the tunnel illuminance level matches the average light level at a point 100 feet from the entrance portal of the tunnel.

Provide 8 hours of training of maintenance personnel on the operation of the tunnel lighting control cabinet. The technician shall be previously trained on the type of tunnel luminaires and the dimming interface.

**D Measurement**
The department will measure Lighting Control Cabinet Tunnel Lighting as each individual unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1051 | Lighting Control Cabinet Tunnel Lighting | Each |

Payment is full compensation for furnishing and installing the lighting control cabinet.

## 193. Brackets Tunnel Lighting, Item SPV.0060.1052.

**A Description**
This special provision describes furnishing and installing mounting brackets for tunnel luminaires at the positions shown in the plan for Tunnel B-40-850

**B Materials**
Provide units as detailed. The brackets are to be mounted on the top of the retaining wall cap of wall R-40-507. Brackets as detailed are for a tunnel fixture of about 2’-0” W x 1’-6”H and a 60 lb luminaire weight. If tunnel luminaires of a different size are proposed, a different sized bracket shall be submitted along with calculations from a registered structural professional engineer. See the drawings for tunnel B-40-850 and retaining wall R-40-507 for special imitations.

Unit shall receive a prime paint coat and an epoxy final paint coat prior to installation.

**C Construction**
Install brackets as shown. Utilize epoxy anchors for the studs securing the brackets to the retaining wall cap.

**D Measurement**
The department will measure Brackets Tunnel Lighting by each individual unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1052 | Brackets Tunnel Lighting | Each |

Payment is full compensation for design, furnishing and installation of the bracket inspection.

## 194. Junction Boxes Steel 18x12x6-Inch Coated, Item SPV.0060.1056.

**A Description**
This special provision describes junction boxes in accordance to standard spec 653 and as hereinafter modified.

**B Material**
The material shall be in accordance to standard bid item 653.0222 and the qualified product list with the exception of the additional items. The unit shall include an epoxy powder coat, anti-corrosive or corrosion free coating for junction box and protective cover and a solid copper ground rod, with a stranded bare copper for equipment grounding electrode conductor.

**C Construction**
Drive a 5/8-inch x 8-foot copper grounding electrode adjacent to the junction box. Bond the equipment grounding conductor and the enclosure to the grounding electrode with #4 AWG and connect to the ground rod with an exothermic weld. The anti-corrosive coating shall be factory applied.

**D Measurement**
The department will measure Junction Boxes Steel 18x12x6-Inch Coated according to standard spec 653.4.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1056 | Junction Boxes Steel 18x12x6-Inch Coated | Each |

Payment is full compensation according to standard spec 653.5.

## 195. Luminaire Utility LED E, Item SPV.0060.1065.

### A Description

This special provision describes furnishing and installing LED luminaires in accordance to pertinent provisions of standard spec 659, as shown on the plans, as the manufacturer directs and as hereinafter provided.

### B Materials

#### B.1 Material Qualifications

Furnish a complete list of documentation in accordance to standard spec 651.2 and the following requirements. Provide the following materials and/or data to the engineer and the City of West Allis Public Works [Peter Daniels, 7525 W Greenfield Avenue, West Allis, WI, (414) 302-3374, pdaniels@westalliswi.govt] for review and approval:

One example luminaire matching what is proposed for use on the project. Example luminaire shall be available for evaluation for up to two weeks time. Furnish the following list of specific documentation detailing the characteristics of the LED luminaire:

- Fixture IES files (.ies format) for illumination modeling
- Cut sheets, warranty information and parts list for all equipment.
- Luminaire heat dissipation techniques.
- Energy usage information.
- Color spectrum with HID lamp comparison.
- Optical design features.

Obtain engineer approval prior to ordering materials on the list.

#### B.2 Luminaire

Furnish LED luminaires with a slim, low profile design that minimizes wind loading. Luminaires shall be constructed of rugged cast and extruded aluminum with integral, weather-tight LED driver components with high performance aluminum heat-sinks. Each luminaire shall use a terminal block for power input suitable for #2 to #14 AWG wire. Luminaire shall be IESNA Type II Medium distribution with a minimum of house side lighting. The luminaire shall designed to mount on a 2" IP (2.375" O.D.) horizontal tenon and shall be adjustable +/- 5 degrees to allow for leveling. Luminaire shall include a leveling bubble visible from the underside of the unit or the inside of the luminaire. Units are to be mounted on the arms salvaged from the lights currently on 101st Street.

#### B.2.1 Electronic Components

Luminaire shall accommodate varied lighting output from high brightness, 4000k to 4300K (+/- 500K per full unit), minimum 70 CRI, long life LED sources. Drivers shall operate across 120-277V, 50/60 Hertz as standard. LED drivers shall have a power factor greater than 90% and THD less than 20% of full load. All luminaires shall come equipped with an integral 2.5kV minimum surge suppression protection standard and a quick

disconnect harness suitable for mate and break under load provided on power feed to driver for ease of maintenance.

**B.2.2 Optical / Illumination Performance**
Luminaire shall conform to the following:

- Luminaire tested and certified by an independent test laboratory to meet the photometric performance criteria established by IESNA LM-79.
- Luminaire shall be IESNA Type II Medium distribution.
- Luminaire shall deliver a minimum of 3,500 lumens and be rated to consume no more than 555 watts (+/- 15%) while operating for a minimum of 70,000 hours (+/- 10%).

**B.2.3 Finish**
The luminaire fixture finish shall feature an epoxy primer with an ultra-durable gray or silver powder topcoat, providing resistance to corrosion, ultraviolet degradation and abrasion. Alternative equivalent finishes shall be approved by the engineer.

**B.2.4 Ratings / Certifications**
Luminaires shall be rated and/or certified as follows:

- U.L. listed for wet locations
- RoHS compliant for lead and mercury standards
- IP-65 minimum weather fastness rating
- IDA dark sky full cutoff compliant

Acceptable LED luminaires are:

- Cree LEDway model; STR-LWY-2MB-HT-03-E-UL-SV-525-40K-SC
- American Electric Model:ATB0-30BLED53-MVOLT-R2-HS=NR
- Philips Lumec Model: Miniview SVS-54W16LED4K-T-LE2-UNIV-HS-GY3

**C (Vacant)**

**D Measurement**
The department will measure Luminaire Utility LED E as each individual LED luminaire, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1065 | Luminaire Utility LED E | Each |

Payment is full compensation for furnishing all materials and installing a complete luminaire.

## 196. Salvaging Luminaire LED - DOT, Item SPV.0060.1066.

**A Description**
This special provision describes removing existing lighting units including luminaires as shown on the plans.

**B (Vacant)**

**C Construction**
Deliver luminaires to the department at the South 60th Street office in West Allis. Contact Mike Prebish at (414) 266-1170, Monday through Thursday from 8:00 AM to 4:00 PM to set up an appointment for delivery.

Units shall be uninstalled, handled, packaged and delivered in a manner that does not damage the luminaire.

**D Measurement**
The department will measure Salvaging Luminaire LED - DOT as each individual unit, acceptably delivered.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1066 | Salvaging Luminaire LED – DOT | Each |

Payment is full compensation for furnishing all work and disposal of material.

## 197. Luminaires Floodlight 1000W HPS, Item SPV.0060.1070.

**A Description**
The work under this item shall consists of furnishing and installing 1000 watt HPS floodlight luminaires with photoelectric control, in both a 240V and 480 Volt configuration depending on the lighting control cabinet supplying the power. Luminaires shall to be installed in accordance to standard spec 659.

**B Materials**
Appropriate 240V Floodlight Models include or approved equal:

- American Electric Lighting, Model 77X1SRNMT266TMLC1023PCSS
- Cooper Lighting, Model HPNKS1000LLOA/RA1016
- Lithonia, Model TFA1000SRBTBFSC22PERLPI

Appropriate 480V Floodlight Models include or approved equal:

- American Electric Lighting, Model 77X1SRN5T466TMLC1023PCSS
- Cooper Lighting, Model HP-NKS-1000-480V-LL-OA/RA1027
- Lithonia, Model TFA-1000S-RB-480FTS-C22-PE4-LPI

Units shall have a 6X6 or 7X7 light distribution. Units shall have a photoelectric cell for control of the fixture operation.

**C Construction**

The following lighting control cabinets will supply 240V power to flood lights for temporary lighting: HL-40-ZN (6 floods); HL-40-TA (2 Floods)

The following lighting control cabinets will supply 480V power to flood lights for temporary lighting: HL-40-LE; HL-40-WB; HL-40-AD; HL-40-DX.

The contractor shall install the luminaire on the light poles at locations specified in lighting plan and in accordance to standard specs 659.2.1 and 659.3.1, wired and fused in accordance to standard spec 659.3.2 and plan details. Luminaires shall be orientated (0 deg = North) as shown and at an angle of 45-degrees from the vertical

**D Measurement**

The department will measure Luminaires Floodlight 1000W HPS as each individual luminaire, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1070 | Luminaires Floodlight 1000W HPS. | Each |

Payment is full compensation for furnishing all the work and materials required under this bid item.

## 198. Luminaires Floodlight 400W HPS, Item SPV.0060.1071.

**A Description**

The work under this item shall consist of furnishing and installing 400 Watt HPS floodlight luminaires, with photoelectric control, in a 480 Volt configuration and in accordance to standard spec 659.

**B Materials**

Appropriate Floodlight Models include or approved equal:

- GE Turnpike, General Elec. Product Number: RPFS-40S480V-M2GL-N3-GRK.
- Holophane Predator, Holophane Product Number: PF-400HP-480V-BN1KR
- Cooper Lighting, Model HP-NKS-400-480V-LL-OA/RA1027

Units shall have a 6x6 or 7x7 light distribution. Units shall have a photoelectric cell for control of the fixture operation.

**C Construction**

Install the luminaire on the light poles at locations specified in lighting plan in accordance to standard spec 659.2.1, and 659.3.1, and wired and fused in accordance to standard spec 659.3.2 of standard specifications and plan details. Luminaires shall be orientated (0 deg = North) as shown and at an angle of 45-degrees from the vertical. Units shall be suitable for mounting on the poles provided under bid item Poles Type A With Bullhorn Bracket.

**D Measurement**

The department will measure Luminaires Floodlight 400W HPS by each individual luminaire, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1071 | Luminaires Floodlight 400W HPS | Each |

Payment is full compensation for furnishing all the work and materials required under this bid item.

## 199. Luminaire (UDL) Wallpack LED, Item SPV.0060.1078.

**A Description**

This special provision describes furnishing and installing LED wallpacks at the locations shown in the plan.

**B Materials**

**B.1 Material Qualifications**

Furnish a complete list of documentation in accordance to standard spec 651.2 and the following requirements. Be prepared to provide the following materials and/or data to the engineer:

One example luminaire matching what is proposed for use on the project. Example luminaire shall be available for evaluation for up to two weeks time. Furnish the following list of specific documentation detailing the characteristics of the LED luminaire:

1. Fixture IES files (.ies format) for illumination modeling
2. Cut sheets, warranty information and parts list for all equipment.
3. Luminaire heat dissipation techniques.
4. Energy usage information.
5. Color spectrum with HID lamp comparison.
6. Optical design features.

Do not order materials until the engineer approves the list.

**B.2 Luminaire**
Furnish LED wallpacks. Luminaires shall be constructed of rugged cast aluminum with integral, weather-tight LED driver components. Castings shall be sealed with a one-piece gasket.. Each luminaire shall use a terminal block for power input suitable for #2 to #14 AWG wire. Luminaire shall be IESNA Type IV distribution. The luminaire shall designed to mount on a flat surface. Unit shall be rated for an outdoor installation down to a -40 Deg C ambient temperature.

**B.2.1 Electronic Components**
Luminaire shall accommodate varied lighting output from high brightness, maximum 5000K (+/- 500K per full unit), long life LED sources. Drivers shall operate across 120-277V, 50/60 Hertz as standard. LED drivers shall have a power factor greater than 90% and THD less than 20% of full load.

**B.2.2 Optical / Illumination Performance**
Luminaire shall conform to the following:

- Luminaire tested and certified by an independent test laboratory to meet the photometric performance criteria established by IESNA LM-79.
- Luminaire shall be IESNA TypeIV distribution.
- Luminaire shall deliver between 6800and 7000 lumens and be rated to consume no more than 80 watts (+/- 15%) The LLF shall be 0.86 or better for a minimum of 100,000 hours (+/- 10%).
- Maximum nominal drive current of 530 Ma.
- Prismatic glass lens.

**B.2.3 Finish**
The luminaire fixture finish shall feature an epoxy primer with an ultra-durable silver powder topcoat, providing resistance to corrosion, ultraviolet degradation and abrasion. Alternative equivalent finishes shall be approved by the engineer.

**B.2.4 Ratings / Certifications**
Luminaires shall be rated and/or certified as follows:

- U.L. listed for wet locations
- RoHS compliant for lead and mercury standards
- IP-65 minimum weather fastness rating

**C Construction**
Install Luminaires (UDL) Wallpack LED in accordance to the pertinent provisions of standard spec 659 and as the manufacturer directs.

**D Measurement**
The department will measure Luminaire (UDL) Wallpack LED as each individual LED luminaire, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1078 | Luminaire (UDL) Wallpack LED | Each |

Payment is full compensation for furnishing all materials; installing a complete luminaire; for furnishing all documentation.

## 200. Luminaire (UDL) Wallpack LED-West Allis, Item SPV.0060.1079.

**A Description**
This special provision describes furnishing and installing LED wallpacks with mounting brackets in accordance to pertinent provisions of standard spec 651 and 659, as the manufacturer directs, as shown on the plans and as hereinafter provided.

**B Materials**
The luminaire furnished and installed herein shall be identical to the luminaire provided under .SPV.0060.1078, Luminaire (UDL) Wallpack LED. Also furnish and install the 90-degree angle bracket as shown for the UDL's to be mounted on top copping of wall R-40-524, to illuminate Schlinger Ave. under IH-894 and its associated ramps.

**C Construction**
Confirm the size of bracket shown is suitable for the approved UDL luminaire for Schlinger Ave. Modify as necessary. Apply a clear coat finish to the finished bracket prior to mounting.

**D Measurement**
The department will measure Luminaire (UDL) Wallpack LED – West Allis as each individual LED luminaire and bracket, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1079 | Luminaire (UDL) Wallpack LED-West Allis | Each |

Payment is full compensation for furnishing all materials; and installing a complete luminaire with bracket.

## 201. Salvage Lighting Control Cabinets, Item SPV.0060.1090.

**A Description**

The work under this item consists of removing lighting control cabinets (previously referred to as distribution centers) from existing base at locations shown in the plans, and delivering the cabinet to the Wisconsin DOT., in accordance to standard specs 654 and 655. Concrete control cabinet base removal and installation will be measured and paid for under a separate bid items.

**B Materials**

Provide small parts, fittings, fasteners, connectors, splice kits, and other appurtenances that are needed to complete the installation and are approved by the engineer.

**C Construction**

Coordinate all necessary arrangements with the utility for removal of electrical service to original site. Unit is not to be removed unless the cabinet no longer powers areas of roadway in use or that will be in use.

Deliver the cabinets to the department at the South 60th Street office in West Allis. Contact Mike Prebish at (414) 266-1170, Monday through Thursday from 8:00 AM to 4:00 PM to set up an appointment for delivery.

**D Measurement**

The department will measure Salvage Lighting Control Cabinets by each individual cabinet, acceptably delivered to the DOT.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1090 | Salvage Lighting Control Cabinets | Each |

Payment is full compensation for removing, delivering the cabinet and for coordination with the utility.

## 202. Lighting Control Cabinet 480/277 VAC, Item SPV.0060.1100.

**A Description**

The work under this item shall consist of furnishing and installing 100 Ampere, 277/480 VAC, 3 phase lighting distribution centers, as shown in the plans. To the extent possible, provide components from the same manufacturer. Conform to standard spec 651.2(4) regarding listed components. Electrical service, service entrance conductors, and concrete control cabinet base will be measured and paid separately. Provide two NEMA decals reading DANGER 480 VOLTS per installation, one for the meter pedestal and one for the cabinet door. Provide an Arc-Flash Hazard Warning decal in accordance to Article 110.16 of NFPA 70. Decals are incidental to the lighting control cabinet.

## B Materials

### B.1 General

**Furnish, deliver and install Lighting Control Cabinet 277/480 VAC. to the project site**. Unit shall be similar to the 240/480VAC, 1 phase distribution cabinet as listed in the department Qualified Product List but with the following exceptions and as noted below:

- Incoming power to be 480Y/277V, 3 phase, 100A
- Utility meter to be 3 phase and of the model and type approved by WE-Energies.
- Surge protection device to be 3 phase
- Main breaker to be 100A/3Pole
- Branch circuit breakers for lighting to be 30A/1Pole
- Lighting contactors to be 3 pole with 277V coils
- Step-down transformer to be 277V/120V
- All lighting circuits to be 4-wire (L1,L2,L3,N) plus ground.

Notify the department lighting engineer, Mr. Eric Perea, (262) 548-5921, for approval before installation.

### B.2 Contactors

The contactors shall be electrically held, specification grade, three-pole, with 30A contacts. Provide 1" high engraved plaque above each contactor indicating the circuit number in ½" text as appropriate.

### B.3 Photocell

Provide photocell receptacle to accommodate NEMA twist-lock photocell. Provide openings on the side and back of housing to allow proper photocell operation. Cabinet door should open south.

### B.4 HOA Switch

Provide a hand-off-auto switch that is accessible without opening dead-front door.

### B.5 Panelboards

Provide a specification grade panelboard interior, Square D type NQ or equal. The panel shall be rated, sized, and configured as indicated on the attached drawings. Provide copper bus bars and copper ground and neutral bus bars. Provide thermal-magnetic circuit breakers that clearly indicate ON, OFF, or TRIPPED position in the panel.

Provide a separate or back-fed main circuit breaker.

### B.6 Enclosures

The cabinet shall be of NEMA Type 3R rainproof construction and shall be UL listed as "Enclosed Industrial Control Equipment" (UL 508A). External construction shall comply with UL50 requirements. Cabinet dimensions shall be as indicated on the attached drawings.

Cabinet exterior shall be fabricated from 1/8” clear anodized 5052-H32aluminum.

All fasteners, latches and hardware shall be of stainless steel and all hinges shall be continuous piano type. No fasteners except sealing screws shall be removable by external access.

All edges and corners on both exterior and interior must be rounded and smooth to prevent injuries.

The distribution equipment compartment shall be behind an external lockable door with standard #2 key locking mechanism. A door keeper shall be provided to keep the door in the open position. Electrical equipment shall be located behind an internal dead-front door with a quarter turn securing latch and hinged to open a minimum of 120 degrees. The dead-front door shall be hinged on the same side as the customer door.

A metal print pocket shall be located on the inside of the customer door large enough to hold all circuit directories and instructions in a clear plastic 8”x10” weatherproof sleeve.

The cabinet mounting bolts shall not be externally accessible. Cabinet can be mounted to a concrete base with use of stainless steel anchors.

Cabinet shall be rated for operation at 22k minimum AIC amps interrupting. Series rating is acceptable.

All distribution and control equipment shall be factory wired using 600 volt wire.

Cabinet dimensions shall be as indicated on the attached drawings.

**B.7 Field Wiring Termination Blocks**

Provide quantity of channel mount NEMA rated, box lug, single terminal blocks as indicated on plans that are capable of holding #12 to #2 wire for power, neutral, and grounding connections. The terminal blocks shall be mounted on a mounting channel with end anchors and an end barrier. Each terminal block shall have a label indicating the appropriate circuit number, neutral (‘N’) or ground (‘G’) wire connected to block; handwritten numbers and letters are not acceptable means of identification.

**B.8 Surge Protection Devices (SPD)**

**SPD for 277/480V 3-Phase Power:** Install a Type 1 SPD on distribution panelboard on the load side of a dedicated 3-pole, 30A circuit breaker.

SPDs shall be UL Listed and labeled to UL 1449 Third Edition. SPDs shall be posted on VZCA at UL.com.

The following ratings shall not be exceeded on any mode of protection:

- Short Circuit Current Rating (SCCR): 200kA or the available short circuit current, whichever is greater
- Nominal Discharge Current Rating (In): 20kA
- Voltage Protection Rating (VPR): 700V
- Maximum Continuous Operating Voltage (MCOV): 150V
- Peak surge current rating: 50kA per phase (sum of L-N plus L-G)

SPDs shall include directly connected MOVs exceeding 32mm in diameter from L-N and either L-G, N-G, or both. SPD shall at a minimum be rated as NEMA 1.

The acceptable Lighting Control Cabinet Manufactures are as follows:

- Milbank Manufacturing
- Povolny Specialties
- State Manufacturing Corporation

**B.9 Control Equipment**

The stepdown transformer shall be 1.5KVA, single phase, 60Hz, encapsulated, NEMA 1 rated and UL listed. The primary voltage shall be 277V and secondary voltage shall be 120V with 5% tapping. The transformer shall be capable of mounting inside the cabinet.

SPST, 20 amp switch for the door shall be single pole single throw type heavy duty, temper resistant, rated for 125V, UL listed.

The incandescent lighting fixture shall be enclosed, gasketed and wet location rated with 60Watt, 120V lamp, UL listed.

Control breaker shall be 15 amp, single pole 120V, bolt on, UL listed. The circuit breaker shall have 10K AIR rating at 120V, terminal for minimum wire size 14 AWG and maximum wire size 8 AWG.

**B.10 Color Coding of Wiring Within the Enclosure**

The color coding within the panel shall be:

| | | |
|---|---|---|
| 480V- | L1 | Brown |
| | L2 | Orange |
| | L3 | Yellow |
| | N | Gray |
| | Gnd | Green or bare |
| | | |
| 120V- | L1 | Black |
| | N | White |
| | Gnd | Green or Bare |

**C Construction**

Use a UL 508 Listed Panel Builder to assemble the lighting control cabinet. Assemble the lighting control cabinet with all of its electrical components, wiring and parts in a neat and orderly fashion and as shown on the plans. Pretest the cabinet prior to shipment to the site. Panel Builder shall apply UL label inside cabinet.

Mount all equipment to panel in enclosure. Train the cables in straight horizontal and vertical directions, and parallel next to, and adjacent to other cables whenever possible. Install wiring in slotted raceway between terminal strip, contactor and panelboard. Secure all remaining wiring using screw attachment type straps; adhesive type will not be allowed.

Surge arresters shall be installed to allow LED indicator(s) to be readily visible when viewing inside of cabinet. Connect the surge arresters as indicated on the plans.

Minimum size wiring within panel to be #12 AWG or as required based upon the overcurrent protection.

**D Measurement**

The department will measure Lighting Control Cabinet 480/277 VAC as each individual unit, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1100 | Lighting Control Cabinet 480/277 VAC | Each |

Payment is full compensation for furnishing and installing the lighting control cabinet.

## 203. Lighting Control Cabinet with FTMS Power 480/277 VAC, Item SPV.0060.1102.

**A Description**

The work under this item shall consist of furnishing and installing 100 Ampere, 277/480 VAC, 3 phase lighting distribution centers, as shown in the plans. The cabinets are identical to those supplied under Lighting Control Cabinet 480/277 VAC with the exceptions listed below.

**B Materials**

**B.1 Control Equipment**

The stepdown transformer shall be 5 KVA, single phase, 60Hz, encapsulated, NEMA 1 rated and UL listed. The primary voltage shall be 277V and secondary voltage shall be 120V with 5% tapping. The transformer shall be capable of mounting inside the cabinet. Provide a 30A/1P circuit breaker for the primary to the stepdown transformer.

Provide a 30A/1P rated, NEMA 3R fused disconnect switch with 20A fuses. Provide #10AWG wiring to fused disconnect switch.

**C Construction**

Use a UL 508 Listed Panel Builder to assemble the lighting control cabinet. Assemble the lighting control cabinet with all of its electrical components, wiring and parts in a neat and orderly fashion and as shown on the plans. Pretest the cabinet prior to shipment to the site. Panel Builder shall apply UL label inside cabinet.

Mount all equipment to panel in enclosure. Train the cables in straight horizontal and vertical directions, and parallel next to, and adjacent to other cables whenever possible. Install wiring in slotted raceway between terminal strip, contactor and panelboard. Secure all remaining wiring using screw attachment type straps; adhesive type will not be allowed.

Mount the 30A/1P fused disconnect switch on the side of the exterior of the cabinet. Wiring and raceway to extend power from the fused disconnect switch will be furnished and installed under a FTMS bid item.

**D Measurement**

The department will measure Lighting Control Cabinet with FTMS Power 480/277 VAC as each individual unit, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1102 | Lighting Control Cabinet with FTMS Power 480/277 VAC | Each |

Payment is full compensation for furnishing and installing the lighting control cabinet.

## 204. Poles Mount for Probeam Luminaire, Item SPV.0060.1125.

**A Description**

The work under this item consists of designing, furnishing and installing a pole and mast arm for structure or concrete base anchorages, to support a Probeam luminaire over the roadway at locations specified in plans, in accordance to plan details, the applicable portions of standard specs 657 and 659, and as hereinafter provided. Design within the parameters shown in the plans and as enumerated below; and certified by vendor to support the required loads. Design the structures for both soundness under load and rigidity so as to prevent flicker of the probeam luminaire. The department will measure and pay for concrete bases, wiring within the pole, and the probeam luminaires as separate items of work.

**B Materials**
Conform to the provisions for galvanized steel structures in standard spec 657.2.1 and 657.2.2.

Certify the drawings as conforming to these requirements. Drawings to be signed and sealed by a registered professional engineer in either Wisconsin or the state in which the structures are to be fabricated. Design to withstand 100 MPH wind with a 1.3 gust factor.

**C Construction**
Conform to the provisions for galvanized steel structures in standard spec 657.3.1 and 657.3.2. The completed structure shall be erected with the shaft vertical and the arm at a 3% rise, under load.

Conform to the requirements for high mast design calculations and shop drawings, standard spec 660.3.1, to the extent that such requirements also apply to the work under this item.

**D Measurement**
The department will measure Poles Mount for Probeam Luminaire by each individual unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1125 | Poles Mount for Probeam Luminaire | Each |

Payment is full compensation for design, furnishing and installation of the pole and arm, and all attachments less luminaires.

## 205. Concrete Bases Type 10P, Item SPV.0060.1126.

**A Description**
The work under this item consists of furnishing and installing concrete base type 10P at locations specified in plans, in accordance to plan details, the applicable portions of standard spec 654, and as hereinafter provided. Concrete base design shall fall within the parameters shown in the plans and as enumerated below; and certified by vendor to support the required loads. The Type 10P concrete bases are for non-structure mounted probeam poles.

**B (Vacant)**

**C Construction**
The detail of construction with the exceptions of the number of anchor rods and conduit size shall be as defined in standard detail for Type 10 concrete bases.

The anchor rods for a Type 10P shall be a quantity of 4 forming a square. The rod circle diameter, rod diameter and projection shall be the same as for a Type 10 concrete base as shown in S.D.D 9 C 11-5. The size, quantity and orientation of conduits into the base shall be as shown on the lighting plans.

The Type 10P shall also have a 2'-0" extension as compared to the Type 10 concrete base and as shown in S.D.D. 9 C 13-2.

**D Measurement**
The department will measure Concrete Bases, Type 10P by each individual unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1126 | Concrete Bases Type 10P | Each |

Payment will be on the same basis as standard concrete base items.

## 206. Probeam Luminaire, Item SPV.0060.1127.

**A Description**
This special provision describes furnishing and installing LED probeam luminaires at the positions shown in the plan.

**B Materials**
**B.1 Material Qualifications**
Furnish a complete list of documentation in accordance to standard spec 651.2.

One example luminaire matching what is proposed for use on the project. Example luminaire shall be available for evaluation for up to two weeks time. Furnish the following list of specific documentation detailing the characteristics of the LED luminaire:

- Fixture IES files (.ies format) for illumination modeling
- Cut sheets, warranty information and parts list for all equipment.
- Luminaire heat dissipation techniques.
- Energy usage information.
- Color spectrum with HID lamp comparison.
- Optical design features.
- Two references from municipalities currently using the same luminaires.

Do not order materials until the engineer approves the list.

**B.2 Luminaire**

Tunnel Luminaire shall be specifically manufactured and tested for tunnel type applications. Luminaire housing shall be die cast from low copper content A360 aluminum with integral heat fins to optimize thermal management through convective and conductive cooling. Housing shall be designed for either wall or ceiling mounting using heavy duty stainless steel brackets. Housing shall have three ¾" NPT threaded entries for connecting with conduit raceway.

Luminaire door shall be completely sealed using a silicone gasket and secured by minimum 6 stainless steel latches or Alloy 410 stainless steel bolts with captive zinc-plated fasteners. Housing door shall be equipped with two internal hinges for easy access to internal components including drivers, surge protection, LED arrays, quick disconnect plugs and high and low voltage terminal blocks. Luminaire door shall encase prismatic borosilicate glass lens.

Complete assembly shall be tested to withstand 3G vibration per ANSI C136.31-2001 and shall be rated IP66 per IEC60529. Additionally luminaire shall pass a High Pressure Water Spray Test where the spray apparatus consists of four spraying nozzles each providing a minimum of 12 gallons per minute at 100 PSI at the nozzle, in a 90-degree cone. Spray shall be applied for 30 minute intervals on surface containing photometric nadir and directly at electrical entry or access points. The test data and results shall be completed in writing and shall be submitted to the engineer for review and acceptance.

**B.3 Electronic Components**

Class 1 Drivers shall be rated for 100,000 hours life and shall be dimming type for 0-10v control signal. Dimming output shall be controllable between 10-100% of nominal. Low voltage terminal block shall provide for landing incoming as well as outgoing signal cable. Driver power factor shall be minimum 90% and maximum total harmonic distortion shall be 20%. Supply power voltage will be 277V.

Surge Protection shall meet 10KV\5KA per ANSI IEEE\C62.41

**B.4 Optical / Illumination Performance**

Luminaire shall conform to the following:

- Luminaire tested and certified by an independent test laboratory to meet the photometric performance criteria established by IESNA LM-79-08.
- Luminaire shall deliver approximately 11000 lumens minimum and be rated to consume no more than 130 watts maximum while operating for a minimum (L70) of 100,000 hours (+/- 10%).
- Maximum nominal drive current of 1050 Ma

**B.5 Finish**

Luminaire housing shall be anodized and then finish coated with Super durable TGIC thermo set powder in gray color. Finish shall exceed 5000 hour salt fog test per ASTM B117 and D1654. Alternative equivalent finishes shall be approved by the engineer.

**B.6 Ratings / Certifications**
Luminaires shall be rated and/or certified as follows:

- IP-65 minimum weather fastness rating
- IDA dark sky full cutoff compliant
- IEC 61000 - Electromagnetic Compatibility Test (EMC)
- FCC Title 47 CFR Part 18 – Federal Communication Commission
- ANSI\IEEE\C62.41
- IEEE 519 – Harmonic Control in Electrical Power Systems
- ANSI C82.77:2002 Harmonic Distortion
- ANSI C136.31:2001 – Luminaire Vibration
- ASTM B 117:2003 – Salt Spray Test
- IEC 60529 – Degrees of protection provided by enclosure
- UL 1598 – UL Wet Location @ 40C
- ROHS compliance for key components

**C Construction**
Install probeam luminaire in accordance to the pertinent provisions of standard spec 659 and as the manufacturer directs.

**D Measurement**
The department will measure Probeam Luminaire as each individual luminaire, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.11127 | Probeam Luminaire | Each |

Payment is full compensation for furnishing all materials; installing a complete luminaire and for furnishing all documentation.

## 207. Poles 13-Foot for Probeam Luminaire, Item SPV.0060.1128.

**A Description**
The work under this item consists of designing, furnishing and installing a pole and mounting plate for structure, to support a Probeam luminaire over the roadway at locations specified in plans, in accordance to plan details, the applicable portions of standard spec 657 and 659, and as hereinafter provided. Design within the parameters shown in the plans and as enumerated below; and certified by vendor to support the required loads. Design the structures for both soundness under load and rigidity so as to prevent flicker of the probeam luminaire. The department will measure and pay for wiring within the pole, and the probeam luminaires as separate items of work.

**B Materials**
Conform to the provisions for galvanized steel structures in standard spec 657.2.1 and 657.2.2.

Certify the drawings as conforming to these requirements. Design to withstand 100 MPH wind with a 1.3 gust factor.

The pole shall be 13'-0" tall and have an 11.5" bolt circle utilizing 1" Dia. anchor bolts. The pole shall be non-tapered and a minimum 6" diameter. Provide a plate welded to the pole shaft for mounting of the probeam luminaire. The liquidtight flexible metallic conduit from the pole to the probeam luminaire shall be incidental to the pole.

**C Construction**
Conform to the provisions for galvanized steel structures in standard specs 657.3.1 and 657.3.2. The completed structure shall be erected with the shaft vertical under load.

Conform to the requirements for high mast design calculations and shop drawings, standard spec 660.3.1, to the extent that such requirements also apply to the work under this item.

**D Measurement**
The department will measure Poles 13-Foot for Probeam Luminaire by each individual unit, acceptably completed.

**E Payment**
The department will pay for the measured quantity at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1128 | Poles 13-Foot for Probeam Luminaire | Each |

Payment is full compensation for design, furnishing and installation of the pole and mounting plate, and all attachments less luminaires.

## 208. Poles Aluminum Type F, Item SPV.0060.1130.

**A Description**
The work under this item consists of furnishing and installing 50-foot nominal height light poles type F at locations specified in plans, in accordance to plan details, the applicable portions of standard spec 657, and as hereinafter provided. Pole design shall fall within the parameters shown in the plans and as enumerated below; and certified by vendor to support the required loads. The department will measure and pay for mast arms and luminaires as a separate item of work.

**B Materials**
Certify the drawings as conforming to these requirements. Drawings to be signed and sealed by a registered professional engineer in either Wisconsin or the state in which the structures are to be fabricated. Design to withstand 100 MPH wind with a 1.3 gust factor.

**C Construction**
The completed lighting unit shall be erected with the shaft vertical and the arms at a 3% rise, under load.

Conform to the requirements for high mast design calculations and shop drawings, standard spec 660.3.1, to the extent that such requirements also apply to the work under this item.

**D Measurement**
The department will measure Poles Aluminum Type F by each individual unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1130 | Poles Aluminum Type F | Each |

Payment is full compensation for furnishing, wiring, and installation of the pole and all attachments less mast arms and luminaires.

## 209. Concrete Bases Type B, Item SPV.0060.1131.

**A Description**
The work under this item consists of furnishing and installing concrete base type B at locations specified in plans, in accordance to plan details, the applicable portions of standard spec 654, and as hereinafter provided. Concrete base design shall fall within the parameters shown in the plans and as enumerated below; and certified by vendor to support the required loads.

**B (Vacant)**

**C Construction**
The detail of construction with the exceptions of height above grade and conduit size shall be as defined in standard detail for Type 8 base.

**D Measurement**
The department will measure Concrete Bases Type B by each individual unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1131 | Concrete Bases Type B | Each |

Payment is full compensation according to standard spec 654.5.

## 210. Removing Electrical Service Meter Breaker Pedestal Lighting, Item SPV.0060.1153.

**A Description**
This special provision describes removing an existing electrical service meter breaker pedestal, supports and any additional electrical equipment associated with the service including disconnect switches and overall enclosure, disconnecting all connected power wires, and disposing of the equipment appropriately.

**B (Vacant)**

**C Construction**
Coordinate removal of the existing electrical service meter breaker pedestal with WE Energies.

Disconnect all connected power wires, remove the pedestal, include existing electrical service meter breaker, supports and disconnect switches if present and dispose of all materials properly away from the project area.

**D Measurement**
The department will measure Removing Electrical Service Meter Breaker Pedestal Lighting by the unit, acceptably removed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.1153 | Removing Electrical Service Meter Breaker Pedestal Lighting | Each |

Payment is full compensation for coordination with WE Energies; for disconnection of wires; for removal of the pedestal and any additional material of the service.

## 211. Ground Rod, Item SPV.0060.2001.

**A Description**
This special provision describes installing a ground rod and ground wire.

**B Materials**
Ground rod shall be copper clad steel with cladding 13 mils thick. The minimum diameter is 5/8-inch and the minimum length is eight feet. Ground wire shall be AWG # 6 bare, solid copper.

**C Construction**
Use exothermic welding to connect the ground wire to the rod. Install the rod vertically, or as close to vertical as conditions permit. Select locations with moist soil, if available. Place the rod at least 6 feet from all other ground rods.

**D Measurement**
The department will measure Ground Rod by the unit, acceptably installed.

**E Payment**
The department will pay for measured quantities at the contract unit price each under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2001 | Ground Rod | Each |

Payment is full compensation for installation of the ground rod and ground wire; welding and connections at both ends of the ground wire.

## 212. Removing Ramp Control Signal Assembly Sidemount, Item SPV.0060.2002.

**A Description**
This special provision describes removing an existing sidemount ramp control signal assembly.

**B Materials**
Materials included in sidemount ramp control signal assemblies are:

1. Traffic signal standards.
2. Pedestal bases for traffic signal use.
3. Vehicular traffic signal heads.
4. Signal mounting brackets.
5. Sign mounting brackets.
6. Enforcement signal displays.

**C Construction**
Remove sidemount ramp control signal assemblies at the locations shown in the plans, or as directed by the engineer. Salvage the signal assemblies for the department to pick up, or dispose of them properly as directed by the engineer.

All work shall be in accordance to the applicable requirements of standard specs 655, 656, 657, and 658, the Wisconsin Electrical Code, these special provisions, and the details shown in the plans.

Salvage and store all removed materials for pickup by the department. Coordinate with the engineer on a schedule to have the removed items picked up. Maintain all materials in a condition suitable for reutilization. Replace all items damaged during construction operations.

Electrical work under this item shall be completed by a journeyman electrician or be completed under the supervision of a journeyman electrician. Legal status or standing as a journeyman electrician shall be certified or otherwise documented to the engineer before any electrical work may begin.

**D Measurement**
The department will measure Removing Ramp Control Signal Assembly Sidemount by the unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2002 | Removing Ramp Control Signal Assembly Sidemount | Each |

Payment is full compensation for removal and storage of the ramp control signal assembly; disconnecting all wiring connections; removing all conduit connections; and for any necessary restoration, including backfill, topsoil, and seeding.

## 213. Removing Controller Cabinet, Item SPV.0060.2003.

**A Description**
This special provision describes removing an existing controller cabinet.

**B (Vacant)**

**C Construction**
Remove controller cabinets at the locations shown on the plans, or as directed by the engineer. Salvage and store the cabinets and all contents for pick up by the department.

Do not remove the existing ITS control cabinets, or any other associated equipment until necessary, or as directed by the engineer. Carefully remove the existing cabinets from the concrete bases, together with all components in such a manner as to safeguard all parts and wiring from damage or loss. Salvage and store the cabinet and contents for pick up by the department.

Prior to removing the existing ITS control cabinets, remove all cables being terminated in the cabinet. Cut existing cables flush with cabinet base and cap existing conduits. Dispose of the cables properly away from the project area.

**D Measurement**
The department will measure Removing Controller Cabinet by the unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2003 | Removing Controller Cabinet | Each |

Payment is full compensation for removal and storage of the controller cabinet; disconnecting all associated wires and cables; and for capping existing conduits.

## 214. Removing Controller Cabinet Base, Item SPV.0060.2004.

**A Description**
This special provision describes removing an existing controller cabinet concrete base.

**B Materials**
Existing controller cabinet base, including concrete masonry, ground rods, masonry anchors, and restoration materials such as topsoil, seeding, mulch, and fertilizer in accordance to the pertinent provisions of standard specs 201, 625, 627, 629, 630, 636, and 640.

**C Construction**
Remove and dispose of the concrete foundation and all other pertinent materials, and restore the disturbed area by placing 4-inches of topsoil, and fertilize, seed, and mulch all disturbed areas in accordance to the pertinent requirements of the standard specifications.

**D Measurement**
The department will measure Removing Controller Cabinet Base by each individual unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2004 | Removing Controller Cabinet Base | Each |

Payment is full compensation for removing and disposing of a concrete controller cabinet base, including masonry anchors, ground rods, and concrete masonry; for topsoil, fertilizer, seed and mulch.

## 215. Removing Controller Ramp Meter Processor Assembly, Item SPV.0060.2005.

**A Description**
This special provision describes removing existing controller ramp meter processor assembly at locations shown on the plan including all materials needed, rewiring and/or disconnect of wiring in the cabinet and return of removed equipment to WisDOT.

**B Materials**
Materials include existing ITS cabinets and existing 170 ramp meter processor assemblies.

**C Construction**
Make all the proper disconnects and wiring changes in the controller cabinet.

Remove the existing controller ramp meter processor assembly as the plans show. Use caution not to damage any existing devices or processor assembly.

The department will pick up the controller ramp meter processor assembly. Contact Kurt Wilm, (414) 940-5570, Wisconsin Department of Transportation, Statewide Traffic Operations Center. Dispose of the cabling and wiring properly away from the project site.

**D Measurement**
The department will measure Remove Controller Ramp Meter Processor Assembly as each individual unit, acceptably removed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2005 | Remove Controller Ramp Meter Processor Assembly | Each |

Payment is full compensation for removing an existing controller ramp meter processor assembly; for disconnecting all necessary cables and wiring; and properly storing the materials.

## 216. Removing Electrical Service Meter Breaker Pedestal, Item SPV.0060.2006.

**A Description**
This special provision describes removing an existing electrical service meter breaker pedestal, disconnecting all connected power wires, and disposing of the equipment appropriately.

**B Materials**
Existing electrical service meter breaker pedestal.

**C Construction**
Coordinate for removal of the existing electrical service meter breaker pedestal with WE Energies.

Disconnect all connected power wires, remove the pedestal and dispose of all materials properly outside of right-of-way.

**D Measurement**
The department will measure Removing Electrical Service Meter Breaker Pedestal by each individual unit, acceptably removed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2006 | Removing Electrical Service Meter Breaker Pedestal | Each |

Payment is full compensation for coordination with WE Energies; for disconnection of wires; for removal and disposal of the pedestal.

## 217. Removing Communications Vault, Item SPV.0060.2007.

**A Description**
This special provision describes removing an existing communications vault.

**B Materials**
Materials include existing communications vault and restoration materials such as backfill, topsoil, seeding, mulch, and fertilizer in accordance to the pertinent provisions of standard spec 201, 625, 627, 629, 630, 636, and 640.

**C Construction**
Disconnect and cap conduit entering the communications vault. Remove and dispose of the communications vault. Backfill with material similar to the material surrounding the removal and restore the disturbed area by placing 4-inches of topsoil, and fertilize, seed, and mulch all disturbed areas in accordance to the pertinent requirements of the standard specifications.

It is acceptable to re-use the vault lid in instances where new communications vaults are being installed in the project and the existing lid is undamaged. It is the contractor's responsibility to determine if the existing vault lids fit on the proposed vaults.

**D Measurement**
The department will measure Removing Communications Vault by each individual unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2007 | Removing Communications Vault | Each |

Payment is full compensation for removing and disposing of a communications vault; and for backfill, topsoil, fertilizer, seed and mulch.

## 218. Install 80-Ft Camera Pole, Item SPV.0060.2008.

### A Description
This special provision describes installing an 80-foot camera pole on a concrete base.

### B Materials
80-foot camera pole and associated anchor bolts will be department furnished.

### C Construction
Install department furnished anchor bolts in a new concrete base. Concrete base is paid for under separate items in this contract.

Install department-furnished 80-foot camera pole on new concrete base paid for separately. Install the pole in the orientation as shown on the plans and directed by the engineer so that the camera blind-spot is correctly and appropriately placed.

Secure camera pole to anchor assemblies conforming to the procedures enumerated in department form DT2321. Complete department form DT2321 for each structure. Indicate the parties responsible for the installation and submit the form to the engineer for inclusion in the permanent project record.

### D Measurement
The department will measure Install 80-Ft Camera Pole by the unit, acceptably installed.

### E Payment
The department will pay for measured quantities at the contract unit price each under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2008 | Install 80-Ft Camera Pole | Each |

Payment for Install 80-Ft Camera Pole is full compensation for installing department-furnished pole including all materials, mounting adapter, camera lowering system, all hardware, and fittings necessary to completely install the pole, and for installing identification plaques where required.

## 219. Removing Microwave Detector Assembly, Item SPV.0060.2009.

### A Description
This special provision describes removing an existing Microwave Detector Assembly.

### B Materials
Materials included in Microwave Detector Assembly are:

1. Microwave Detector.
2. Type 5 Pole.
3. Transformer Base.
4. Mounting Hardware.

**C Construction**
Remove Microwave Detector Assembly at the locations shown in the plans, or as directed by the engineer. Salvage the Microwave Detector Assemblies for the department to pick up, or dispose of them properly as directed by the engineer.

All work shall be in accordance to the applicable requirements of standard specs 655, 656, 657, and 658, the Wisconsin Electrical Code, these special provisions, and the details shown in the plans.

Salvage and store all removed materials for pickup by the department. Coordinate with the engineer on a schedule to have the removed items picked up. Maintain all materials in a condition suitable for reutilization. Replace all items damaged during construction operations.

Electrical work under this item shall be completed by a journeyman electrician or be completed under the supervision of a journeyman electrician. Legal status or standing as a journeyman electrician shall be certified or otherwise documented to the engineer before any electrical work may begin.

**D Measurement**
The department will measure Removing Microwave Detector Assembly by each individual unit, acceptably removed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2009 | Removing Microwave Detector Assembly | Each |

Payment is full compensation for removal and storage of the Microwave Detector Assembly; disconnecting all wiring connections; removing all conduit connections; for any necessary restoration, including backfill, topsoil, and seeding.

## 220. Install Portable Video Surveillance System, Item SPV.0060.2010.

**A Description**
This special provision describes deploying a portable trailer-mounted video surveillance system as shown in the plans to provide continuous video surveillance of the project area during permanent CCTV sites downtime.

**B Materials**
Materials will be state-furnished and will be an all inclusive unit consisting of a cable erected pole with a direct IP CCTV camera, a solar power system, a wireless Ethernet bridge, and stability outriggers, all mounted on a trailer.

**C Construction**
Pick up the state-furnished video surveillance system at the department facility at 531 W. Newhall Ave, Waukesha, WI.

Deploy the surveillance system in the initial location as shown on the plans and as directed by the engineer following all recommended procedures by the manufacturer.

Integrate the surveillance system with the new and existing communications system through the wireless Ethernet bridge. Installation of the backhaul end of the wireless Ethernet bridge will be compensated for with other pay items in this contract.

**D Measurement**
The department will measure Install Portable Video Surveillance System as a unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price each under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2010 | Install Portable Video Surveillance System | Each |

Payment is full compensation for picking up the surveillance system in Waukesha; for deploying it in the project area; for making functional, and for testing.

## 221. Relocating Portable Video Surveillance System, Item SPV.0060.2011.

**A Description**
This special provision describes moving a previously deployed portable video surveillance system to a new location as directed by the engineer or as made necessary by construction operations in the area.

**B Materials**
Portable video surveillance system and wireless Ethernet bridge previously deployed through other pay items in this contract.

**C Construction**
Coordinate all planned down-time of the portable video surveillance system with the STOC at (414) 227-2166. Notify the STOC an amount of time ahead of planned down-time equal to the planned down-time. Examples would be that a 4-hour temporary down-time of the system would require notification 4-hours ahead of time while an 8-hour planned down-time would require 8-hours of advance notification.

Per manufacturer's recommendations, prepare the surveillance system for towing, relocate to the new location, re-deploy, and make functional as directed by the engineer and as made necessary by construction operations.

No payment will be made for this work unless previously approved by the engineer. No payment will be made for this work for relocations made necessary by operations not previously planned with the engineer's approval.

**D Measurement**
The department will measure Relocating State-Furnished Portable Video Surveillance System by each individual unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price each under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2011 | Relocating Portable Video Surveillance System | Each |

Payment is full compensation for taking the surveillance system down, moving to a new location, and re-deploying in a new location; for re-integrating the wireless Ethernet bridge into the communications system.

## 222. Install Temporary Vehicle Detector Assembly, Item SPV.0060.2012.

**A Description**
This special provision describes assembling a temporary vehicle detector assembly and installing, calibrating, and integrating the assembly into the existing system in accordance to standard spec 675, as shown on the plans and as hereinafter provided. Inclusion of a second solar power and detector system will be paid for by additional quantities of this pay item.

**B Materials**
Materials will include state-furnished materials and contractor furnished materials.

State-furnished materials include the following:

- One Electronic Integrated Systems, Inc. (EIS) Remote Traffic Microwave Sensor (RTMS).
- One cellular modem and antenna.
- One solar power system consisting of 2-85W panels, 2-120 Amp-Hour batteries, a solar power controller, and one solar power cabinet to house the batteries and controller.

Contractor furnished materials include the following:

- Outdoor rated Power cable between solar power system output and state-furnished RTMS.
- Mounting hardware for solar power system and RTMS detector.

**C Construction**

**C.1 General**

Assembly will be done on a 40-foot wood pole provided under other pay items in the contract.

**C.2 RTMS Detector Installation**

Install the RTMS detector as required in standard spec 675 and connect the detector to the furnished cellular modem. Coordinate integration of the detector and modem assembly into the existing communications and FTMS system.

**C.3 Solar Power System Installation**

Install the solar panels facing south on the pole with the devices to be powered. If a compass is used, a correction must be made for the difference between magnetic north and true north. Install the solar panels at a tilt angle of approximately 60 degrees. The tilt angle shall be considered the angle from horizontal to the front, or face of the solar panel.

Mount the cabinet to the pole by the two cast aluminum mounting brackets which are already attached to the back of the cabinet. Attach the brackets to the pole using stainless steel bands or U-bolts.

Install the cabling, ensuring that cables enter the cabinet only through the bottom, and that strain relief fittings are used to seal cable entrance points. Connect the panel to the charge controller, connecting the white wire to the positive (+) terminal and the black wire to the negative terminal (-).

**D Measurement**

The department will measure Install Temporary Vehicle Detector Assembly as each individual assembly, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price each under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2012 | Install Temporary Vehicle Detector Assembly | Each |

Payment is full compensation for installing the assembly; for calibrating the detector; for connecting the detector to the modem and integrating it into the existing FTMS system; and for making the assembly functional.

## 223. Refocusing Vehicle Detector Assembly, Item SPV.0060.2013.

**A Description**

This special provision describes refocusing an existing microwave detector for operation with a new lane configuration when relocation of the vehicle detector assembly pole is not required.

**B Materials**
Materials include the following items purchased and installed in other pay items in this contract or other contracts:

- One or more Electronic Integrated Systems, Inc. (EIS) Remote Traffic Microwave Sensor (RTMS).
- One cellular modem and antenna.

**C Construction**
Refocus the RTMS detector as required in standard spec 675 and reintegrate the detector and modem into the existing FTMS system.

**D Measurement**
The department will measure Refocusing Vehicle Detector Assembly by the site, regardless of the number of detectors, acceptably refocused and operational.

**E Payment**
The department will pay for measured quantities at the contract unit price each under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2013 | Refocusing Vehicle Detector Assembly | Each |

Payment is full compensation for making the detector site fully operational with a new lane configuration.

## 224. Removing Temporary Vehicle Detector Assembly, Item SPV.0060.2014.

**A Description**
This special provision describes removing and disassembling temporary vehicle detector assemblies from their respective locations in the project area, salvaging the individual components for pick up by the department, and disposing of unwanted components as appropriate.

**B Materials**
Materials to be salvaged for the department include the following:

- One or more Electronic Integrated Systems, Inc. (EIS) Remote Traffic Microwave Sensor (RTMS).
- Cellular modem and antenna.
- Solar power systems consisting of solar power panels, batteries, solar power controllers, and solar power cabinets to house the batteries and controller.
- Mounting hardware for solar power system and RTMS detector.

Materials to become property of the contractor include the following:

- Wood pole
- Cable between solar power system output and RTMS.

**C Construction**
As directed by the engineer, remove the temporary vehicle detector assemblies from their respective locations in the project. Do not damage any of the components to be salvaged for the department.

Salvage the materials described above for pick up by the department.

The material not salvaged for the department shall become the property of the contractor. Properly dispose of it according to standard spec 204.3.1.3.

Restore the site to match the existing surrounding area using standard restoration items as described in the standard specifications.

**D Measurement**
The department will measure Removing Temporary Vehicle Detector Assembly as each individual assembly, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price each under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2014 | Removing Temporary Vehicle Detector Assembly | Each |

Payment is full compensation for removing the assembly; for salvaging appropriate materials; disposal of other materials off site; and for restoration of the site.

## 225. Relocating Temporary Vehicle Detector Assembly, Item SPV.0060.2015.

**A Description**
This special provision describes relocating an already installed temporary vehicle detector assembly, including removing it from the existing location and installing, calibrating, and integrating the assembly into the existing system at the new location.

**B Materials**
Materials include materials previously furnished by the department and materials previously furnished by the contractor previously installed through other pay items in the contract.

These materials include the following:

- One or more Electronic Integrated Systems, Inc. (EIS) Remote Traffic Microwave Sensors (RTMS) and wireless modem.
- One or more solar power system consisting of 2-85W panels, 2-120 Amp-Hour batteries, a solar power controller, and one solar power cabinet to house the batteries and controller.
- One 40-foot Class 4 or larger wood pole.

- Outdoor rated power cable between solar power system output and state-furnished RTMS.
- Mounting hardware for solar power system and RTMS detector.

**C Construction**

**C.1 Removal**

Coordinate all planned down-time of the temporary vehicle detector assembly with the STOC at (414) 227-2166. Notify the STOC an amount of time ahead of planned down-time equal to the planned down-time. Examples would be that a 4-hour temporary down-time of the system would require notification 4-hours ahead of time while an 8-hour planned down-time would require 8-hours of advance notification.

Obtain approval from the engineer that the existing detector assembly is working properly. Inspect the vehicle detector assembly for damage.

As shown on the plans or as directed by the engineer, remove the temporary vehicle detector assemblies from their respective locations in the project. Do not damage any of the components that make up the system.

Restore the site to match the existing surrounding area using standard restoration items as described in the standard specifications.

**C.2 RTMS Detector Installation**

Install the wood pole according to industry standards for supplied pole length.

Install the RTMS detector in accordance to pertinent requirements of standard spec 675 Integrate the wireless modem.

**C.3 Solar Power System Installation**

Install the solar panels facing south on the pole with the devices to be powered. If a compass is used, a correction must be made for the difference between magnetic north and true north. Install the solar panels at a tilt angle of approximately 60 degrees. The tilt angle shall be considered the angle from horizontal to the front, or face of the solar panel.
Mount the cabinet to the pole by the two cast aluminum mounting brackets which are already attached to the back of the cabinet. Attach the brackets to the pole using stainless steel bands or U-bolts.

Install the cabling, ensuring that cables enter the cabinet only through the bottom, and that strain relief fittings are used to seal cable entrance points. Connect the panel to the charge controller, connecting the white wire to the positive (+) terminal and the black wire to the negative terminal (-).

**D Measurement**

The department will measure Relocating Temporary Vehicle Detector Assembly as each assembly, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price each under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2015 | Relocating Temporary Vehicle Detector Assembly | Each |

Payment is full compensation for removing the assembly, installing the assembly, calibrating the detector, integrating the detector into the communications system, making the assembly functional, and for furnishing all restoration work needed at the original and new location.

## 226. Removing Electronic Blank Out Sign Assembly, Item SPV.0060.2016.

**A Description**
This special provision describes removing a small electronic blank out message sign and associated supporting wood posts.

**B Materials**
Existing electronic blank out message sign and wood posts.

**C Construction**
Disconnect the power conductors for the blank out sign at the associated cabinet.

Remove the existing sign and dispose of it appropriately off the project site.

Remove the existing wood posts and dispose of appropriately off the project site.

**D Measurement**
The department will measure Removing Electronic Blank Out Sign Assembly as each individual unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2016 | Removing Electronic Blank Out Sign Assembly | Each |

Payment is full compensation for removing and disposing of an electronic blank out message sign and wood posts.

## 227. Install Antenna, Item SPV.0060.2017.

**A Description**
This special provision describes installing a state-furnished Yagi or omni-directional spread spectrum radio antenna and above ground metallic conduit. The antenna has a pigtail for connection to the antenna cable. Provide stainless steel bands for mounting to a steel pole or sign structure. Provide 2” metallic conduit to house antenna cable.

**B Materials**
Antenna as provided by the state. Metallic Conduit, 2-Inch as required in standard spec 652.

**C Construction**
Connect the antenna drop cable to the antenna. The connection shall be fully sealed using methods and materials recommended by the radio manufacturer. Install the antenna so that it does not block the view of any microwave detector on the same pole.

Aim the antenna at the matching antenna, as shown in the plans. Use the signal strength indicator on the radio to find the optimum position.

**D Measurement**
The department will measure Install Antenna as a unit, completely installed and operational.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2017 | Install Antenna | Each |

Payment is full compensation for testing and installing the antenna and connections; and for furnishing all labor, tools, metallic conduit, mounting hardware, equipment, transportation, and incidentals necessary to complete the work.

## 228. Install Wireless Modem, Item SPV.0060.2018.

**A Description**
This special provision describes installing a wireless cellular modem and antenna and providing all necessary associated wiring.

**B Materials**
The department will furnish the wireless cellular modem and antenna. Provide all necessary cables between the wireless modem and device to be connected to it.

**C Construction**
Drill a hole in the new or existing cabinet to install the wireless modem antenna cable through. Mount the antenna on top of the cabinet and seal the hole with purpose-made waterproof sealing device such as a grommet or gasket.

Install the wireless modem in a new or existing field cabinet. Connect it to the antenna and to devices as shown on the plans, or as directed by the engineer.

**D Measurement**
The department will measure Install Wireless Modem by the unit, installed according to the contract, tested, and accepted.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2018 | Install Wireless Modem | Each |

Payment is full compensation for installing a wireless modem; furnishing all necessary incidental hardware; and making all necessary connections.

## 229. Removing Wireless Modem, Item SPV.0060.2019.

**A Description**
This special provision describes removing a wireless cellular modem and antenna and all associated wiring.

**B (Vacant)**

**C Construction**
Carefully remove the antenna on top of the cabinet or other field device and seal the hole with purpose-made waterproof sealing device such as a grommet or gasket.

Carefully remove the wireless modem from the existing field cabinet or device. Salvage the wireless modem and antenna for pick up by the department.

**D Measurement**
The department will measure Removing Wireless Modem by the unit, removed according to the contract, tested, and accepted.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2019 | Removing Wireless Modem | Each |

Payment is full compensation for removing a wireless modem and antenna; all necessary hardware.

## 230. Salvage Microwave Detector Assembly, Item SPV.0060.2020.

**A Description**
This special provision describes salvaging an existing Microwave Detector Assembly in accordance to the pertinent provisions of standard specs 655, 656, 657, and 675, the Wisconsin Electrical Code, as shown on the plans and as hereinafter provided.

**B Materials**
Materials included in Microwave Detector Assembly are:

- Microwave Detector(s).
- Type 5 Pole.
- Transformer Base.
- Mounting Hardware.

**C Construction**
Remove Microwave Detector Assembly at the locations shown in the plans, or as directed by the engineer. Store the Microwave Detector Assemblies in a safe and secure location until reinstalled on the project. Maintain all materials in a condition suitable for reutilization. Replace all items damaged during construction operations.

Electrical work under this item shall be completed by a journeyman electrician or be completed under the supervision of a journeyman electrician. Legal status or standing as a journeyman electrician shall be certified or otherwise documented to the engineer before any electrical work may begin.

**D Measurement**
The department will measure Salvage Microwave Detector Assembly by each individual unit, acceptably removed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2020 | Salvage Microwave Detector Assembly | Each |

Payment is full compensation for removal and storage of the Microwave Detector Assembly; disconnecting all wiring connections; removing all conduit connections; for any necessary restoration, including backfill, topsoil, and seeding.

## 231. Install Salvaged Microwave Detector Assembly, Item SPV.0060.2021.

**A Description**
This special provision describes installing a salvaged Microwave Detector Assembly in accordance to the pertinent provisions of standard specs 655, 656, 657, and 675, the Wisconsin Electrical Code, as shown on the plans and as hereinafter provided.

**B Materials**
Materials included in Salvaged Microwave Detector Assembly are:

- Microwave Detector(s).
- Type 5 Pole.
- Transformer Base.
- Mounting Hardware.

**C Construction**
Transport the salvaged microwave Detector Assembly from its stored location to the project site.

Electrical work under this item shall be completed by a journeyman electrician or be completed under the supervision of a journeyman electrician. Legal status or standing as a journeyman electrician shall be certified or otherwise documented to the engineer before any electrical work may begin.

**D Measurement**
The department will measure Install Salvaged Microwave Detector Assembly by each individual unit, acceptably installed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2021 | Install Salvaged Microwave Detector Assembly | Each |

Payment is full compensation for transportation of the salvaged Microwave Detector Assembly to the project location; installation of the Microwave Detector Assembly; making all wiring connections and conduit connections; and for any necessary restoration, including backfill, topsoil, and seeding.

## 232. Salvage Wireless Traffic Sensor Repeater, Item SPV.0060.2022.

**A Description**
This special provision describes salvaging an existing wireless traffic sensor repeater.

**B Materials**
Salvage the Wireless Traffic Sensor Repeater mounted as shown on the plans.

**C Construction**
Ensure that the repeater is not damaged during removal or storage. If the repeater is not being reused with the project, contact Jeff Madson at (414) 225-3723 to coordinate delivery of the repeater to the department.

Reuse or properly dispose of all mounting hardware.

**D Measurement**
The department will measure Salvage Wireless Traffic Sensor Repeater as each individual unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2022 | Salvage Wireless Traffic Sensor Repeater | Each |

Payment for Salvage Wireless Traffic Sensor Repeater is full compensation for salvaging the repeater and for delivery to the department.

## 233. Install Wireless Traffic Sensor Repeater, Item SPV.0060.2023.

### A Description

This special provision describes installing a state furnished or salvaged repeater to extend the range of coverage between the sensor nodes and access point as shown on the plans and as hereinafter provided.

### B Materials

State furnished or salvaged wireless traffic sensor repeater.

Furnish necessary mounting hardware.

### C Construction

Install salvaged repeater at locations shown on the plans as manufacturer instructions indicate. Integrate the repeater device with the wireless sensor node and the access point box.

Test the installed repeater.

Make all communications connections between the wireless sensor mode, access point and repeater as required to provide a fully operational detection system.

After the repeater has been installed, and all other sensor equipment has been installed, the FTMS field system integrator shall successfully perform a field test at the sensor location to verify the sensor is detecting vehicles and accurately relaying the information to the access point.

Following successful completion of the test, activate the entire detection system and leave it on for 30 consecutive days. During this period, ensure that all materials and components of the sensor system furnished and installed operate as specified and without any failure.

In the event that any contractor-provided component of the sensor system malfunctions or operates below the level specified, the department will terminate the test period, and will require the FTMS field system integrator to determine and correct the problems, including repair or replacement of equipment, at no cost to the department. Upon correction of the problems, the engineer will start a new 30-day test period. If a malfunction is the result of equipment not installed by the contractor, the engineer will suspend the acceptance test period until the responsible party corrects these problems.

**D Measurement**
The department will measure Install Salvaged Wireless Traffic Sensor Repeater as each individual unit acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2023 | Install Wireless Traffic Sensor Repeater | Each |

Payment for Install Wireless Traffic Sensor Repeater is full compensation for installing all materials necessary to completely install the sensor repeater, and for furnishing all required testing.

## 234. Salvage Poles Type 5, Item SPV.0060.2024.

**A Description**
This special provision describes salvaging an existing Type 5 Pole with transformer base according to standard specs 655, 656, and 657, the Wisconsin Electrical Code, as shown on the plans and as hereinafter provided.

**B Materials**
Materials included are:

- Type 5 Pole.
- Transformer Base.

**C Construction**
Remove pole at the location shown in the plans, or as directed by the engineer. Store the pole and base in a safe and secure location until reinstalled on the project. Maintain all materials in a condition suitable for reutilization. Replace all items damaged during construction operations.

Electrical work under this item shall be completed by a journeyman electrician or be completed under the supervision of a journeyman electrician. Legal status or standing as a journeyman electrician shall be certified or otherwise documented to the engineer before any electrical work may begin.

**D Measurement**
The department will measure Salvage Poles Type 5 by each individual unit, acceptably removed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2024 | Salvage Poles Type 5 | Each |

Payment is full compensation for removal and storage of the Type 5 Pole and Transformer Base; disconnecting all wiring connections; removing all conduit connections; for any necessary restoration, including backfill, topsoil, and seeding.

## 235. Install Salvaged Poles Type 5, Item SPV.0060.2025.

### A Description

This special provision describes installing a salvaged Type 5 Pole with transformer base and all necessary mounting hardware, according to standard specs 655, 656, and 657, the Wisconsin Electrical Code, as shown on the plans and as hereinafter provided.

### B Materials

Materials included are:

- Salvaged Type 5 Pole.
- Salvaged Transformer Base.
- Installation Hardware

### C Construction

Transport the salvaged pole and base from its stored location to the project site. Install the salvaged pole and base as shown in the plans.

Electrical work under this item shall be completed by a journeyman electrician or be completed under the supervision of a journeyman electrician. Legal status or standing as a journeyman electrician shall be certified or otherwise documented to the engineer before any electrical work may begin.

### D Measurement

The department will measure Install Salvaged Poles Type 5 by each individual unit, acceptably installed.

### E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2025 | Install Salvaged Poles Type 5 | Each |

Payment is full compensation for transportation of the salvaged Type 5 Pole and Transformer Base to the project location; installation of the Type 5 Pole and Transformer Base; furnishing all necessary hardware; making all wiring connections and conduit connections; and for any necessary restoration, including backfill, topsoil, and seeding.

## 236. Install Conduit Into Buried Vault, Item SPV.0060.2026.

### A Description

This special provision describes installing proposed conduit into an existing buried communication vault.

### B Materials

Use conduit as provided and paid for under other items in this contract.

Re-use the removed material to backfill the vault. When necessary furnish backfill material and gravel conforming to the requirements of pertinent provisions of the standard specifications.

### C Construction

Excavate the site of the buried vault to expose it to a depth sufficient to install the proposed conduit into it. Excavation of a depth of up to 10-feet to the lid of the buried vault will be included in this pay item.

Verify that the exposed vault is the department's vault in the system. Expose the outside of the existing vault without disturbing existing conduits or cabling. Drill the appropriate sized hole for the entering conduit(s) at a location within the vault without disturbing the existing cabling and without hindering the installation of new cabling within the installed conduit. Fill void area between the drilled hole and conduit with an engineer-approved filling material to protect against conduit movement and entry of fill material into the structure. Replace excavated material and supplement backfill with new material if needed to bring the area back to existing grade and match adjacent area.

### D Measurement

The department will measure Install Conduit Into Buried Vault by the unit, acceptably installed. Up to five conduits entering a structure per entry point into the existing structure will be considered a single unit. Conduits in excess of five, or conduits entering at significantly different entry points into the existing pull box, manhole, or junction box will constitute multiple units of payment.

### E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2026 | Install Conduit Into Buried Vault | Each |

Payment is full compensation for excavating, drilling holes; furnishing and installing all materials, including coarse aggregate, sand, bedding, and backfill; for excavating and backfilling; and for properly disposing of surplus materials; and for making inspections.

# 237. Install Temporary Traffic Camera Assembly, Item SPV.0060.2027.

## A Description

This special provision describes assembling, installing and integrating a temporary traffic monitoring camera assembly into the existing system in accordance to standard spec 677, as shown on the plans and as hereinafter provided.

## B Materials

Materials will include state-furnished materials and contractor furnished materials.

State-furnished materials include the following:

- One Internet Protocol Dome CCTV camera.
- One solar power system consisting of 4-85W panels, 4-120 Amp-Hour batteries, a solar power controller, and two solar power cabinets to house the batteries and controller.
- One mid-span Power-Over-Ethernet power injector.

Contractor furnished materials include the following:

- Outdoor rated Power cable between solar power system output and state-furnished RTMS.
- Mounting hardware for solar power system and CCTV Camera.
- 2-Inch schedule 80 nonmetallic conduit.
- 2-Inch stainless steel bands.
- Category 5 (or better) network cable between the wireless ethernet bridge and the power injector, and between the power injector and the CCTV camera.

## C Construction

Install assembly on a 40-Foot wood pole with communications through a 5.8 GHz Ethernet Bridge, both of which will be provided under other pay items in the contract.

Install the solar panels facing south on the pole with the devices to be powered. If a compass is used, a correction must be made for the difference between magnetic north and true north. Install the solar panels at a tilt angle of approximately 60 degrees. The tilt angle shall be considered the angle from horizontal to the front, or face of the solar panel.

Mount the cabinets to the pole by the two cast aluminum mounting brackets which are already attached to the back of the cabinet. Attach the brackets to the pole using stainless steel bands or U-bolts.

Install the cabling, ensuring that cables enter the cabinet only through the bottom, and that strain relief fittings are used to seal cable entrance points. Connect the panel to the charge controller, connecting the white wire to the positive (+) terminal and the black wire to the negative terminal (-).

**D Measurement**
The department will measure Install Temporary Traffic Camera Assembly as each individual unit consisting of one CCTV camera and one CCTV camera solar power assembly, acceptably installed and integrated into the existing FTMS system.

**E Payment**
The department will pay for measured quantities at the contract unit price each under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2027 | Install Temporary Traffic Camera Assembly | Each |

Payment for Temporary Traffic Camera Assembly is full compensation for installing department-furnished camera assemblies, power injector and solar power systems on poles; for providing all cables; for integrating the assembly into the existing FTMS system and making the assembly functional; and for furnishing all conduit, hardware and connections.

## 238. Temporary Poles Wood 40-Foot, Item SPV.0060.2028.

**A Description**
This special provision describes furnishing and installing a Class 4, 40-Foot wood pole for use during the duration of the contract.

**B Materials**
Furnish wood poles that are Class 4 or larger with a 40-Foot minimum overall length. The poles shall be western red cedar in accordance to ANSI standards 05.1. Pressure treatment shall be 5% pentachlorophenol with a minimum of 8 pounds per cubic foot net retention of the oil-borne preservative. Poles shall be shaved the entire length.

**C Construction**
Place the wood pole in the ground as shown in the plans or as directed by the engineer and mount detectors and solar power assemblies as shown in the plans and as directed and paid for under other pay items in this contract.

**D Measurement**
The department will measure Temporary Poles Wood 40-Foot as each individual pole, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price each under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2028 | Temporary Poles Wood 40-Foot | Each |

Payment is full compensation for furnishing and installing the wood post for the duration of the project and all excavating and backfilling.

## 239. Install 5.8 GHz Ethernet Bridge, Item SPV.0060.2029.

### A Description

This special provision describes installing a state-furnished, or salvaged, 5.8 GHz Ethernet bridge access point or subscriber unit at a new or existing cabinet or new or existing pole.

### B Materials

Materials will include state-furnished materials and contractor furnished materials.

State-furnished or salvaged, materials include the following:

- One 5.8 GHz Ethernet bridge with integral antenna.
- One 5.8 GHz Ethernet bridge power converter.
- One 5.8 GHz Ethernet bridge mounting bracket.

Contractor-furnished materials include the following:

- Mounting hardware.
- Outdoor rated Category 6 communications cable.
- Inline network cable surge suppressor.

### C Construction

Bond the surge suppressor to the cabinet grounding system.

Install the 5.8 GHz Ethernet Bridge in a point-to-point or point-to-multipoint configuration as shown on the plans and as directed by the engineer.

Use the manufacturer's set-up software to configure the Ethernet bridge radio for its intended use. Use the signal strength indicator on the radio to find the optimum position. Also perform a frequency analysis to determine the optimal hop pattern of the radios and test the continuity of the link by polling the radios using the software provided. The position of the radio and the hop pattern shall be adjusted until the polls show at least 200 consecutive polling intervals have been successfully transmitted and received. Demonstrate to the engineer that the hop pattern selected corresponds to the optimal noise free frequencies identified in the frequency analysis. Deliver 3 copies of the final test results for signal strength, frequency analysis, and test polling.

### D Measurement

The department will measure Install 5.8 GHz Ethernet Bridge as each individual unit, acceptably completed.

### E Payment

The department will pay for measured quantities at the contract unit price each under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2029 | Install 5.8 GHz Ethernet Bridge | Each |

Payment is full compensation for installing, setting up, configuring, and testing the 5.8 GHz Ethernet bridge radio, surge suppressor, cables, and connections; and required transportation.

## 240. Install Cabinet Heater and Thermostat, Item SPV.0060.2030.

### A Description

This special provision describes installing department-furnished cabinet heater and thermostat as shown on the plans and as hereinafter provided.

### B Materials

The units will consist of cabinet heater and thermostat. Provide stainless steel bolts and any other mounting or wiring hardware not furnished by the department.

### C Construction

Install the cabinet heater in the lower part of the cabinet as shown on the plans.

Connect the cabinet heater to the AC power supply and place the thermostat in the upper part of the cabinet as shown on the plans.

### D Measurement

The department will measure Install Cabinet Heater and Thermostat as each individual assembly, acceptably completed.

### E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2030 | Install Cabinet Heater and Thermostat | Each |

Payment is full compensation for installing all materials, including heater and thermostat and connections; for furnishing and installing mounting hardware; and for testing.

## 241. Install Wavetronix Click 200 Module, Item SPV.0060.2031.

### A Description

This special provision describes installing department furnished Wavetronix Click 200 Module as shown on the plans and as hereinafter provided.

### B Materials

The unit will consist of a Wavetronix Click 200 Module, DIN racks, terminal block, and wiring. Provide stainless steel bolts and any other mounting or wiring hardware not furnished by the department.

**C Construction**
Install the Wavetronix Click 200 Module in the cabinet on to the DIN rail as shown on the plans. Maintain good physical contact between the DIN rail and the cabinet to assure proper grounding.

Connect the Wavetronix Click 200 Module to the Wavetronix Power Module and to the Wavetronix unit as shown on the plan.

After the Wavetronix Click 200 Module is installed and the Wavetronix cable is connected to the Wavetronix units, test to see that all of the traffic lanes are being collected correctly.

**D Measurement**
The department will measure Install Wavetronix Click 200 Module as each Wavetronix Click 200 Module, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2031 | Install Wavetronix Click 200 Module | Each |

Payment is full compensation for installing Wavetronix Click 200 Module, making all necessary connections; for furnishing and installing mast brackets and mounting hardware; and for testing.

## 242. Install Wavetronix Power Module, Item SPV.0060.2032.

**A Description**
This special provision describes installing department furnished Wavetronix power module (Click 202).

**B Materials**
The units will consist of Wavetronix power module, DIN racks, terminal block, and wiring. Provide stainless steel bolts and any other mounting or wiring hardware not furnished by the department.

**C Construction**
Install and test the charge regulator in the enclosure. Make the necessary electric connections between the components of the Wavetronix power module.

**D Measurement**
The department will measure Install Wavetronix Power Module as each individual assembly, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2032 | Install Wavetronix Power Module | Each |

Payment is full compensation for installing the Wavetronix power module and module rack in cabinet; for making all connections; for furnishing all programming; and for furnishing all testing.
SEF-ZOO IC 14_0701

## 243. Install Wavetronix Detector Module, Item SPV.0060.2033.

### A Description

This special provision describes installing and testing a department-furnished Wavetronix Detector (HD 125) Module and HD 125 Cable as shown on the plans and as hereinafter provided.

### B Materials

The department will provide the Wavetronix Detector (HD 125) Module and HD 125 Cable.

### C Construction

Make all Wavetronix detector cables connections to the field cabinet and Wavetronix detector (HD 125) module.

Complete testing procedures at each location prior to work or assume responsibility for the ultimate correct operation of the module and cables.

Demonstrate the functionality and accuracy of the vehicle detectors connected to each location. The traffic flow information obtained from each detector shall be within +/- 5% of each of two 10-minute manual data periods.

Successfully conduct a field test via the FTMS field system integrator for each Wavetronix Detector (HD 125) Module, complete with connections.

Following successful completion of the above tests, activate the Wavetronix Detector (HD 125) Module and leave on for 30 consecutive days. During this period, operate all materials and components of the Wavetronix Detector (HD 125) Module as specified and without any failure.

If any component of the Wavetronix Detector (HD 125) Module malfunctions or operates below the level specified, the test period will be terminated, and the FTMS field system integrator will determine the problem and report the findings to the engineer. Upon correction of the problems, to the satisfaction of the engineer, a new 30- day test period will be started. If a malfunction is the result of equipment not installed by the contractor (e.g., power service), the acceptance test period will be suspended until these problems are corrected by others.

Submit copies of the test results via the FTMS field system integrator, including any unsuccessful and subsequently successful tests to the engineer prior to any field operations testing.

**D Measurement**
The department will pay for Install Wavetronix Detector Module and HD 125 Cable as each individual unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2033 | Install Wavetronix Detector Module | Each |

Payment is full compensation for installing the Wavetronix Detector (HD 125) Module and HD 125 Cable; for making all connections; and for furnishing all testing.

The cost of correcting the Wavetronix Detector (HD 125) detector and cables is incidental to the item.
SEF-ZOO IC 15_0429

## 244. Install Cellular Antenna, Item SPV.0060.2034.

**A Description**
This special provision describes installing State Furnished Cellular Antennas as shown on the plans and as hereinafter provided.

**B Materials**
The State will provide Cellular/Nextel/PCS Dual Band antennas. The following antennas are included:

Yagi Antennas with 10 dB Gain

All mounting material shall be stainless steel. Holes or notches shall not be drilled into a sign structure or pole. The sign structure or pole shall not be altered in any way.

**C Construction**
Install the antennas on poles by means of a mast bracket as shown on the plans. Provide the mast bracket of a diameter and construction as recommended by the antenna manufacturer, and approved by the engineer. Electrical and physically bond the mast bracket to the pole. The bracket shall maintain good physical contact with the pole to assure proper grounding.

Place the antenna in the direction indicated on the plan and Communication Schematic to ensure 100% data transfer.

Connect the antenna drop cable to the antenna. The connection shall be fully sealed with waterproof antenna sealant type compound.

After the antenna is installed on the pole, and the antenna cable is connected from the antenna to the assembly, test the signal for data transfer and signal strength. The data transfer shall be at 100%, and the signal strength shall be 60 or better.

**D Measurement**
The department will measure Install Cellular Antenna, as each cellular antenna is acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2034 | Install Cellular Antenna | Each |

The payment is full compensation for installing antenna and making all necessary connections; for furnishing and installing mast brackets and mounting hardware; and for testing.

## 245. Install Piezoelectric Axle Sensor, Item SPV.0060.2035.

**A Description**
This special provision describes installing department furnished piezoelectric axle sensors as hereinafter provided.

**B Materials**
Department furnished materials include:

- Roadtrax BL Class 1 piezoelectric sensors, including lead in cable of a sufficient length to reach the controller cabinet without splicing.
- AS475 Axle Sensor Grout

Contractor furnished materials include:

- Materials necessary to clean the sensors
- Electrical duct seal

**C Construction**
Clean the piezoelectric axle sensor with steel wool and rubbing alcohol and handle with plastic gloves.

Glue the piezoelectric axle sensor into the pavement using department supplied AS475 Axle Sensor Grout.

Run the piezoelectric lead-in into conduit to the pull boxes and to the cabinet base without splices. Plug the piezoelectric axle sensor lead-in conduit using electrical duct seal to prevent the grout from entering into the conduit. Follow installation instructions when applying the grout.

Install the piezoelectric axle sensors according to manufacturer's instructions at www.meas-spec.com.

**D Measurement**
The department will measure Install Piezoelectric Axle Sensor as each sensor, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2035 | Install Piezoelectric Axle Sensor | Each |

Payment for Installing Piezoelectric Axle Sensor is full compensation for installing all materials.

## 246. Concrete Control Cabinet Base ATR Special Type 7, Item SPV.0060.2037.

**A Description**
This special provision describes furnishing and installing a Concrete Control Cabinet Base, ATR Special Type in accordance to the pertinent provisions of standard specs 654 and 652, as shown on the plans and as hereinafter provided. This installation is for an automatic traffic recorder (ATR) station.

**B Materials**
Provide materials for a Concrete Control Cabinet Base, ATR Special Type 7 in accordance to standard spec 654.2.2 and standard detail drawing 9 C 5-9, Concrete Control Cabinet.

Furnish four 3-inch conduits and one 1-inch conduit in accordance to standard spec 652.2.

**C Construction**
Construct a Concrete Control Cabinet Base, ATR Special Type 7 in accordance to standard spec 654.3 and standard detail drawing 9 C 5-9, Concrete Control Cabinet.

Install four 3-inch conduits and one 1-inch conduit to fit in the 7-inch by 14-inch rectangle for the opening at the bottom of the cabinet as described in the plan details.

**D Measurement**
The department will measure Concrete Control Cabinet Base ATR Special Type 7 as each individual cabinet base, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2037 | Concrete Control Cabinet Base ATR Special Type 7 | Each |

Payment is full compensation for furnishing and installing all materials, including concrete.

## 247. Install ATR Controller Cabinet, Item SPV.0060.2038.

**A Description**
This special provision describes installing a state-furnished ATR Controller Cabinet.

**B Materials**
Use materials furnished by the department including.

Pick up the materials at the department's electrical shop located at 935 South 60th Street, West Allis, WI 53214. Notify the department's electrical field unit at (414) 266-1170 and make arrangements for picking up the department furnished materials five working days prior to picking up the materials.

Provide all other needed materials in conforming to standard specs 651.2, 652.2, 653.2, 654.2, 655.2 and 656.2.

**C Construction**
Perform work conforming to standard specs 651.3, 652.3, 653.3, 654.3, 655.3, and 656.3.

**D Measurement**
The department will measure Install ATR Controller Cabinet as each cabinet, acceptably installed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2038 | Install ATR Controller Cabinet | Each |

Payment is full compensation for installing the ATR Controller Cabinet; for furnishing and installing all other items necessary (such as, wire nuts, splice kits and/or connectors, tape, insulating varnish, ground lug fasteners, etc.) to make the proposed system complete from the source of supply to the most remote unit; for clean-up and waste disposal.

## 248. Wireless Traffic Sensor, Item SPV.0060.2040.

### A Description

This special provision describes furnishing and installing flush-mount wireless sensors in pavement to detect monitor vehicles.

### B Materials

For the wireless sensor, use device that mounts flush to pavement, 16 frequency channels available, with 128 Hz sampling rate, auto-calibration, and 2-way radio communications. Integrate the wireless sensor node with the access point box and repeater device.

### C Construction

Install contractor-furnished wireless sensors at locations the plans show.

Core or drill hole in pavement and vacuum or brush the hole clear of dust and debris.

Apply epoxy to the bottom of the hole to a depth approximately 1/3 of hole's total depth.

Install sensor in pavement at least 4" (10 cm) in diameter and 2 ¼" (5.7 cm) deep using a hammer or core drill.

Fill the hole with epoxy, completely covering the sensor and its shell.

Take every precaution to ensure that the sensor node is not damaged during storage or installation.

The contractor or field system integrator shall furnish all equipment, appliances, and labor necessary to test the installed sensor node.

Make all communications connections between the wireless sensor mode, access point and repeater, as required to provide a fully operational detection system.

After the wireless sensor node has been installed, and all other sensor equipment has been installed, the ATMS field system integrator shall successfully perform a field test at the sensor location to verify the sensor is detecting vehicles and accurately relaying the information to the access point.

Furnish all test equipment.

Following successful completion of the test, activate the entire detection system and leave it on for 30 consecutive days. During this period, ensure that all materials and components of the sensor system furnished and installed operate as specified and without any failure.

In the event that any contractor-provided component of the sensor system malfunctions or operates below the level specified, the department will terminate the test period, and will require the ATMS field system integrator to determine and correct the problems, including

repair or replacement of equipment, at no cost to the department. Upon correction of the problems, the engineer will start a new 30-day test period. If a malfunction is the result of equipment not installed by the contractor, the engineer will suspend the acceptance test period until the responsible party corrects these problems.

**D Measurement**
The department will measure Wireless Traffic Sensor as each individual unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2040 | Wireless Traffic Sensor | Each |

Payment for Wireless Traffic Sensor is full compensation for installing all materials, necessary to completely install the sensor node; and for installing identification plaques when required.

## 249. Wireless Traffic Sensor Repeater, Item SPV.0060.2042.

**A Description**
This section describes furnishing and installing a repeater to extend the range of coverage between the sensor nodes and access point.

**B Materials**
Furnish a device that mounts to a pole, sign or traffic signal, has a battery life of at least two years, has 16 frequency channels available, an ability to handle 10 sensors per application, and can communicate with the access point at a range up to 1,000 feet (305 meters).

**C Construction**
Install the repeater at locations the plans show.

Make all communications connections between the wireless sensor mode, access point and repeater, as required to provide an operational detection system. Integrate the repeater device with the wireless sensor node and the access point box.

After the repeater has been installed, and all other sensor equipment has been installed, the ATMS field system integrator shall successfully perform a field test at the sensor location to verify the sensor is detecting vehicles and accurately relaying the information to the access point.

The contractor or field system integrator shall furnish all equipment, appliances, and labor necessary to test the installed sensor node.

Following successful completion of the test, activate the entire detection system and leave it on for 30 consecutive days. During this period, ensure that all materials and components of the sensor system furnished and installed operate as specified and without any failure.

In the event that any contractor-provided component of the sensor system malfunctions or operates below the level specified, the department will terminate the test period, and will require the ATMS field system integrator to determine and correct the problems, including repair or replacement of equipment, at no cost to the department. Upon correction of the problems, the engineer will start a new 30-day test period. If a malfunction is the result of equipment not installed by the contractor, the engineer will suspend the acceptance test period until the responsible party corrects these problems.

**D Measurement**

The department will measure Wireless Traffic Sensor Repeater as each individual unit, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2042 | Wireless Traffic Sensor Repeater | Each |

Payment is full compensation for furnishing and installing all materials necessary to completely install and test the repeater.

## 250. Wireless Traffic Sensor Contact Closure Module, Item SPV.0060.2043; Extension Card, Item SPV.0060.2044.

**A Description**

This section describes furnishing and installing wireless traffic sensor contact closure modules and expansion cards to facilitate the connection of the wireless traffic sensors to ramp meter controllers.

**B Materials**

Furnish contact closure modules and expansion cards that are fully interoperable with the Wireless Traffic Sensors and associated equipment as provided under other pay items in this contract.

Under the respective bid items, integrate the contact closure modules and extension cards with the repeater device, wireless sensor node and the access point box.

Wireless Traffic Sensor Contact Closure Modules shall accommodate four contact closures and must function in a 170 / 2070 style contact closure rack system.

Wireless Traffic Sensor Extension Cards shall accommodate one contact closure per card and must function in a 170 / 2070 style contact closure rack system.

**C Construction**

Install Wireless Traffic Sensor Contact Closure Modules and Wireless Traffic Sensor Extension Cards at locations as show on the plans or as directed by the engineer.

Install furnished materials per manufacturer instructions.

Take every precaution to ensure that the materials are not damaged during storage or installation.

The contractor or field system integrator shall furnish all equipment, appliances, and labor necessary to test the installed equipment.

Make all communications connections among the contact closure module, expansion card, wireless sensor mode, access point and repeater, as required to provide a fully operational detection system.

After all sensor equipment has been installed, the FTMS field system integrator shall perform a field test at the sensor location to verify the sensor is detecting vehicles and accurately relaying the information to the access point.

Furnish all test equipment.

Following successful completion of the test, activate the entire detection system and leave it on for 30 consecutive days. During this period, ensure that all materials and components of the sensor system furnished and installed operate as specified and without any failure.

In the event that any contractor-provided component of the sensor system malfunctions or operates below the level specified, the department will terminate the test period, and will require the ATMS field system integrator to determine and correct the problems, including repair or replacement of equipment, at no cost to the department. Upon correction of the problems, the engineer will start a new 30-day test period. If a malfunction is the result of equipment not installed by the contractor, the engineer will suspend the acceptance test period until the responsible party corrects these problems.

**D Measurement**

The department will measure Wireless Traffic Sensor Contact Closure Module and Wireless Traffic Sensor Contact Closure Extension Card as each individual unit, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2043 | Wireless Traffic Sensor Contact Closure Module | Each |
| SPV.0060.2044 | Wireless Traffic Sensor Contact Closure Extension Card | Each |

Payment for Wireless Traffic Sensor Contact Closure Module and Wireless Traffic Sensor Contact Closure Extension Card is full compensation for installing all materials, necessary to completely install the module and extension module; and for installing identification plaques when required.

## 251. Removing Temporary Traffic Camera Assembly, Item SPV.0060.2045.

### A Description

This special provision describes removing and disassembling a temporary traffic camera assembly, including CCTV camera, wireless Ethernet Bridge, wood pole, and solar power assembly. This work includes salvaging materials for pick up by the department.

### B Materials

Materials to be salvaged for the department include the following:

- One Internet Protocol Dome CCTV camera
- One solar power system consisting of 4-85W panels, 4-120 Amp-Hour batteries, a solar power controller, and two solar power cabinets to house the batteries and controller.
- One 5.8 GHz wireless ethernet bridge
- One mid-span Power-Over-Ethernet power injector

Materials to become property of the contractor include the following:

- Wood pole
- Conduit
- Stainless steel bands
- Network cable and power conductors

### C Construction

As directed by the engineer, remove the temporary CCTV camera assembly from its respective location in the project. Do not damage any of the components to be salvaged for the department.

Salvage the materials described above for pick up by the department.

The material not salvaged for the department shall become the property of the contractor. Properly dispose of it according to standard spec 204.3.1.3.

Restore the site to match the existing surrounding area using standard restoration items as described in the standard specifications.

### D Measurement

The department will measure Removing Temporary Traffic Camera Assembly as each individual unit, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price each under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2045 | Removing Temporary Traffic Camera Assembly | Each |

Payment is full compensation for removing the assembly, salvaging appropriate materials for pick up by the department, disposing of other materials, and for restoring the site to its original condition.

## 252. Install Fiber Optic Media Converter, Item SPV.0060.2050.

**A Description**

This special provision describes installing a multi-mode to single-mode fiber optic media converter, and providing all necessary associated wiring.

**B Materials**

The department will furnish the fiber optic media converter. Provide all necessary cables between media converter and associated device.

**C Construction**

Install the media converter in a new or existing field cabinet. Connect it to devices as shown on the plans, or as directed by the engineer.

**D Measurement**

The department will measure Install Fiber Optic Media Converter by the unit, installed according to the contract, tested, and accepted.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2050 | Install Fiber Optic Media Converter | Each |

Payment is full compensation for installing a fiber optic media converter; furnishing all necessary incidental hardware; and making all necessary connections.

## 253. Multi-cell Conduit Connection, Item SPV.0060.2052.

**A Description**

This special provision describes connecting to an existing 4-duct multi-cell conduit system and extending it to meet a new manhole to avoid conflicting with adjacent roadway construction work in this contract.

**B Materials**
Existing materials consist of a 4-inch multi-cell conduit with four 1-1/4-inch inner ducts.

Furnish a duct repair kit purpose built for use in repairing 4-duct multi-cell conduit systems. Outer duct must be schedule 40 PVC. Inner duct conduits may be smooth wall flexible ducts as furnished with purpose built repair kits.

Furnish an extension to the multi-cell conduit system up to 20-feet in length to connect to the proposed manhole as shown in the plans, or as directed by the engineer.

**C Construction**
Perform this work in coordination with other work as shown on the plans.

Install purpose built multi-cell conduit duct repair kit to extend the conduit system to the proposed manhole as shown in the plans and as directed by the engineer. Up to 20-feet of extension will be included in this pay item.

Backfill the trench created for this work with material excavated to expose the existing conduit or with new material meeting requirements of the pertinent sections of the standard specifications.

**D Measurement**
The department will measure Multi-cell Conduit Connection by the unit each acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price per linear foot under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.2052 | Multi-cell Conduit Connection | Each |

Payment for Multi-cell Conduit Connection is full compensation for furnishing split duct repair kit or kits; for excavating the trench as needed for work; for connecting the conduits into a proposed manhole; for backfilling the trench with re-claimed or new backfill material.

## 254. Supplemental Traffic Signal Cabinet Concrete Base, Item SPV.0060.3001.

**A Description**
Work under this specification shall be done in accordance to standard spec 654, contract plan detail, and these special provisions.

**B Materials**
Materials shall be in accordance to standard spec 654.

**C Construction**
Construction shall be in accordance to standard spec 654.

**D Measurement**
The department will measure Supplementary Traffic Signal Cabinet Concrete Base bid item as each individual base, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.3001 | Supplemental Traffic Signal Cabinet Concrete Base | Each |

Payment is full compensation for providing concrete bases; for embedded conduit and electrical components; for anchor rods, nuts, and washers; for bar steel reinforcement, if required; for excavating, backfilling, and disposing of surplus materials.

## 255. Install Traffic Cabinet Base, Item SPV.0060.3101.

**A Description**
Install concrete traffic cabinet base furnished by the City of Milwaukee, for traffic signals as shown on the plans.

**B Materials**
Pre-cast concrete traffic cabinet base will be furnished by the City of Milwaukee.

**C Construction**
Pick up pre-cast concrete traffic cabinet bases from the City of Milwaukee yard located at 1540 W. Canal Street. Contact traffic signal shop dispatch at (414) 286-3687 to coordinate pick up.

Install concrete traffic cabinet bases in accordance to the plans. Plan changes must be approved by a City of Milwaukee Electric Services Supervisor or Traffic Engineer. The primary contacts are Mr. Al Nichols, Traffic Operations Supervisor (414) 286-3687 office, (414) 708-5148 mobile; or Mr. Joseph Blakeman, Traffic Control Engineer III, (414) 286-8070.

**D Measurement**
The department will measure the Install Traffic Cabinet Base bid item as each individual base, complete and accepted in place.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.3101 | Install Traffic Cabinet Base | Each |

Payment is full compensation for picking-up the Traffic Cabinet Base; for installing the Traffic Cabinet Base and all other required materials; for excavation, backfilling and disposal of surplus material.

## 256. Install Traffic Signal Base, Item SPV.0060.3102.

**A Description**
Install concrete traffic signal bases furnished by the City of Milwaukee, for traffic signals as shown on the plans.

**B Materials**
Pre-cast concrete traffic signal bases will be furnished by the City of Milwaukee.

**C Construction**
Pick up pre-cast concrete traffic signal bases from the City of Milwaukee yard located at 1540 W. Canal Street. Contact traffic signal shop dispatch at (414) 286-3687 to coordinate pick up.

Install concrete traffic signal bases in accordance to the plans. Plan changes must be approved by the City of Milwaukee Electric Services Supervisor or Traffic Engineer. The primary contacts are Mr. Al Nichols, Traffic Operations Supervisor (414) 286-3687 office, (414) 708-5148 mobile; or Mr. Joseph Blakeman, Traffic Control Engineer, (414) 286-8070.

**D Measurement**
The department will measure the Install Traffic Signal Base bid item as each individual base, complete and accepted in place.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.3102 | Install Traffic Signal Base | Each |

Payment is full compensation for picking-up the Traffic Signal Base; for installing the Traffic Signal Base and all other required materials; for excavation, backfilling and disposal of surplus material; and for furnishing all labor, tools, equipment and incidentals necessary to complete the work.

## 257. Traffic Polymer Concrete Vault 13-Inch x 24-Inch x 18-Inch, Item SPV.0060.3103; 17-Inch x 30-Inch x 18-Inch, Item SPV.0060.3104.

**A Description**
This special provision describes furnishing and installing Polymer Concrete Vaults in accordance to current City of Milwaukee methods.

**B Materials**

**B.1 General**

Polymer Concrete shall be manufactured from one of the general types and grades defined in polymers in concrete structural applications state of the art report, ACI 548.6R-96 for structural uses. Thermoplastics will not be acceptable.

Enclosure walls shall be made from pattern cut structural fiberglass cloths to assure uniform, pre-measurable fiberglass content on all areas. Chopper gun fiberglass construction is not acceptable.

Binding polymers used in the manufacture of the polymer concrete and the fiber reinforced polyester shall be of the same formulation or from formulations with demonstrated chemical compatibility to assure complete chemical bonding of all components. Fiber reinforced polyester wall sections must be cast integrally into and chemically bonded within the upper polymer concrete casting.

**B.2 Testing**

Meet ANSI/SCTE 77 2010 **(**Tier 15 or greater**)**, ASTM C 857, and WUC 3.6 structural requirements.

Compressive Modulus of Elasticity (fiberglass reinforced polymer): 5.6 x $10^6$ PSI tested in accordance to procedures outlined in ASTM D-695

Comprehensive Strength (fiberglass reinforced polymer): 24,300 PSI tested in accordance to ASTM D-695

Flexural Strength (fiberglass reinforced polymer): 18,700 PSI tested in accordance to ASTM D-790

Tensile Strength (fiberglass reinforced polymer): 12,100 PSI tested in accordance to procedures outlined in ASTM D-638

Tensile Modulus of Elasticity (fiberglass reinforced polymer): 8.6 x $10^5$ PSI tested in accordance to procedures outlined in ASTM D-638

Splitting Tensile Strength (polymer concrete): Tested in accordance to procedures outlined in ASTM C-496

Accelerated Service: Tested in accordance to procedure E outlined in ASTM D-756

Water Absorption: Tested in accordance to ASTM D-570 outlined in sections 6.1 and 6.5

Impact Resistance (fiberglass reinforced polymer concrete): 72 foot pounds in accordance to ASTM D-2444 administered with a “C” tip.

Skid Resistance: 0.60 coefficient of friction in accordance to ASTM C-1028

Flammability Test: Tested in accordance to ASTM D-635

Ultraviolet Exposure: Tested in accordance to ASTM test method G-53

Chemical Resistance

1. Sodium Chloride 5%
2. Sodium Carbonate 0.1 N
3. Hydrochloric Acid 0.2 N
4. Acetic Acid 5%
5. Sulfuric Acid 0.1N
6. Sodium Sulfate 0.1 N
7. Sodium Hydroxide 0.1N
8. Kerosene Oil per ASTM D-543
9. Transformer Oil per ASTM D-543

The street lighting vaults and covers shall be gray in color and shall be flared wall as indicated on the Drawings. Covers shall be provided with 2 stainless steel bolts. Each cover shall have the words "TRAFFIC" cast into its surface along the longest dimension. The words shall be permanently recessed into the surface.

**C Construction**

Install rectangular flared wall vaults according to current City of Milwaukee standards. Provisions for inserting conduit into any side or the bottom of the vault shall be included.

**D Measurement**

The department will measure the Polymer Concrete Vault (Size) bid item as each individual vault, complete and accepted in place.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.3103 | Traffic Polymer Concrete Vault 13-Inch x 24-Inch x 18-Inch | Each |
| SPV.0060.3104 | Traffic Polymer Concrete Vault 17-Inch x 30-Inch x 18-Inch | Each |

Payment is full compensation for furnishing and installing all materials; for excavation, backfilling; disposal of surplus material; equipment, coordination and all materials and incidentals necessary to complete the work.

## 258. Anchor Assemblies Sign Bridge Structures, ItemSPV.0060.4100; Anchor Assemblies Noise Barrier Structures, Item SPV.0060.4105.

**A Description**

Furnish and install anchor bolt assemblies for sign bridge structures and noise barriers that will be installed on bridges and retaining walls as shown on the plans.

**B Materials**

Anchor bolts shall be of size and spacing as given on the plans and conform to AASHTO M 314 GR 55. Provide heavy hex nuts conforming to AASHTO M 292 and hardened washers conforming to AASHTO M 293. Provide embedded anchor plates for anchor assemblies as shown on the plans conforming to AASHTO M 223. Provide five nuts and washers per anchor bolt for Anchor Assemblies Sign Bridge Structures. Provide three nuts and washers per anchor bolt for Anchor Assemblies Noise Barriers Structures.

Hot dip galvanize the entire anchor assembly. Galvanize embedded anchor plates conforming to AASHTO M 111 and galvanize anchor bolts, nuts and washers conforming to AASHTO M 232. Provide enlarged threads on nuts for proper fit after galvanizing.

**C Construction**

Install embedded anchor assemblies in concrete structures at locations as shown on the plans. Mount anchor assemblies to formwork or otherwise provide positive support of anchor assembly within formwork as necessary to prevent movement, shifting or misalignment of the anchor assembly during subsequent concrete placement. Protect or clean exposed anchor bolt threads from concrete splatter.

Coordinate location and spacing of anchor assemblies embedded in bridges and retaining walls for mounting noise barriers on bridges and retaining walls with approved noise barrier shop drawings.

**D Measurement**

The department will measure Anchor Assemblies Sign Bridge Structures and Anchor Assemblies Noise Barriers Structures by each individual anchor assembly, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.4100 | Anchor Assemblies Sign Bridge Structures | Each |
| SPV.0060.4105 | Anchor Assemblies Noise Barrier Structures | Each |

Payment is full compensation for furnishing and installing the anchorages.

## 259. Pile Dynamic Analyzer (PDA) Testing, Item SPV.0060.4110; Pile Dynamic Analyzer (PDA) Restrikes, Item SPV.0060.4115; CAse Pile Wave Analysis Program (CAPWAP) Evaluation, Item SPV.0060.4116.

**A Description**

The items consist of providing Pile Dynamic Analyzer (PDA) load testing and analyses/evaluation, as outlined in the contract plans and this special provision. This Dynamic Pile Load Testing is being done to set pile resistance criteria. Production piles

will be driven in accordance to pile resistance criteria produced by the contractor after PDA testing and evaluation is completed at each substructure unit. PDA restrikes will be completed as described in this special provision, or as directed by the engineer.

The piles and pile driving will be paid for under standard spec 550. This applies to both piles installed using the PDA criteria and for production piles installed using the criteria developed by the contractor from the PDA installations.

Data collected during the testing described herein will form the basis for the final driving criteria to be applied to production piles in the substructure unit under consideration. Submit to the engineer the name and qualifications of the person(s) completing this work. Provide documentation that the person(s) completing this work have successfully completed at least 5 PDA testing projects within the last three years, and that these identified projects are of a scope and complexity similar to that anticipated for this project. Persons without this minimum experience will not be allowed to complete work on this project. Also submit documentation of experience with PDA equipment manufactured by Pile Dynamics, Inc. and the CAse Pile Wave Analysis Program (CAPWAP). All dynamic monitoring shall be performed using a PDA (Model PAK, PAX, or PAL). Furnish all equipment necessary for the dynamic monitoring such as sensors, cables, or wireless transmitters, etc. The equipment shall conform to the requirements of ASTM D4945. A person with a minimum of four years of experience and who has achieved a minimum of Advanced Level on the Foundation QA Examination for Providers of PDA Testing Services, shall be in charge of PDA operations and of data interpretation. They shall be present on site, or by remote connection, at the time of all PDA testing.

**B (Vacant)**

**C Construction**

**C.1 Test Locations**

Perform dynamic pile load testing at the pile locations identified on the plans. These locations are referred to simply as 'PDA Test Piles' throughout the remainder of this specification. Piles noted as PDA Test Piles are a functional load-carrying part of the completed foundation unit, and not solely used for testing.

**C.2 Driving Sequence**

Perform PDA testing on the first piles installed in each substructure unit. PDA Test Piles shall be located as shown on the footing plan. No other piles in the substructure unit shall be used for PDA testing unless agreed to by the engineer. Do not drive any other piles in the unit until all required testing has been completed and the final driving criteria for that substructure unit has been determined in writing and accepted by the engineer.

**C.3 Pile Driving**

Drive PDA Test Piles to penetration depths and/or penetration resistances as directed by the engineer. Drive PDA Test Piles using the same methods and equipment that have been accepted for driving the production piles.

Drive PDA Test Piles to one of the following lengths:

- If the required plan driving resistance is achieved at a pile length less than plan length, stop driving the pile. Pile restrikes will be required as described in Section C6 of this special provision to document that the minimum plan required driving resistance is achieved.
- If PDA indicated pile capacity is greater than or equal to 85% of the required driving resistance, at the estimated plan length, stop driving. Pile restrikes will be required as described in Section C6 of this special provision to document that the minimum plan required driving resistance is achieved.
- If the pile resistance at plan length is less than 85% of the required driving resistance, continue to drive the pile until the resistance reaches 85% or more of the plan driving resistance. Upon achieving 85% or more, stop driving. Pile restrikes will be required as described in Section C6 of this special provision to document that the minimum plan required driving resistance is achieved.

In all cases, the required plan driving resistance will be shown either through end of initial drive data or from restrike data, as defined above.

**C.4 Scheduling**
Provide a written schedule to the engineer showing all required PDA Test Pile activities for the following week. Submit this schedule a minimum of two working days prior to the first day included in the schedule.

Multiple concurrent PDA testing and/or analyses will be allowed. Any delays to the contractors schedule due to coordination or untimeliness of PDA testing or evaluation/analyses will not be grounds for extension of contract time.

**C.5 Installation Testing**
Perform dynamic measurements following procedures set forth in ASTM D4945 during the driving of piles designated as PDA Test Piles.

Continuous PDA monitoring may require multiple installations of PDA testing equipment depending on the supplied pile length. If multiple piles lengths are used to produce the final installed pile, multiple PDA equipment installations will be required. With the PDA testing equipment attached, drive the pile and monitor using the PDA equipment.

**C.6 Restrike Tests**
Perform restrike tests on all PDA test piles as part of the initial dynamic pile load testing program as described in section C5. See restrike criteria given in section C3.

Wait a minimum of 12 hours and a maximum of 72 hours or a time period as directed by the engineer, after initial pile installation is complete; then, restrike each PDA test pile with the required dynamic testing instruments attached.

Warm the hammer before the restrike by applying at least 20 blows to a non-test pile, or by other means acceptable to the engineer.

The maximum amount of penetration required during the restrike test shall be 6 inches, or the maximum number of hammer blows required will be 30, whichever occurs first.

The pre-approved pile-driving hammer used for restrike testing shall be capable of supplying enough energy to develop a minimum of twice the required driving resistance shown on the plans.

**C.7 CAPWAP Evaluation and Drive Criteria**

Pile-driving criteria for each substructure unit shall be determined from dynamic pile tests conducted on the total length of each pile noted for PDA Testing in the plans. Submit the required driving resistance and the driving criteria for the production piles determined by dynamic pile testing to the engineer for acceptance for the production pile installation. Electronically submit the driving criteria and a report with the results of the CAPWAP evaluation to the engineer.

Utilize the dynamic test data to establish the following pile driving criteria: (1) a minimum driven length below cutoff level, and (2) a maximum penetration rate per 10 hammer blows for 30 consecutive blows. Drive all remaining piles in each unit in accordance to the established criteria for that unit.

Driving production piles shall continue until the required driving resistance is achieved for 30 consecutive hammer blows. Mark penetration per 10 consecutive hammer blows.

The engineer may alter driving criteria as necessary to assure development of adequate pile capacity. In any pile where pile capacity or integrity is suspect, the engineer may order PDA testing.

**D Measurement**

The department will measure Pile Dynamic Analyzer (PDA) Testing as each individual unit, acceptably completed, in which one unit includes all PDA-related effort on one pile during the initial driving.

The department will measure Pile Dynamic Analyzer (PDA) restrikes as each individual unit, acceptably completed, in which one unit includes all of the restrike and testing effort required on an individual pile when it is restruck.

The department will measure CAse Pile Wave Analysis Program (CAPWAP) Evaluation as each individual unit, acceptably completed, in which one unit includes all analyses and effort required to provide drive criteria for installation of production piles in one substructure unit.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.4110 | Pile Dynamic Analyzer (PDA)Testing | Each |
| SPV.0060.4115 | Pile Dynamic Analyzer (PDA) Restrikes | Each |
| SPV.0060.4116 | CAse Pile Wave Analysis Program (CAPWAP) Evaluation | Each |

Payment for Pile Dynamic Analyzer (PDA) Testing is full compensation for facilitating the initial dynamic pile load test on a given pile, including possible multiple sensor installations.

Payment for Pile Dynamic Analyzer (PDA) Restrikes is full compensation for facilitating and performing one restrike test on a pile, including the sensor installation, mobilization of equipment, hammer warm-up, and pile restriking.

Payment for CAse Pile Wave Analysis Program (CAPWAP) Evaluation is full compensation for providing the personnel, software and equipment to evaluate the results of the monitoring for each substructure unit for the purpose of establishing production pile driving criteria, and the electronic submittal of the driving criteria and report with the results of the CAPWAP evaluation.

## 260. Bearings High-Load Multi-Rotational Fixed, Item SPV.0060.4120; Guided, Item SPV.0060.4125.

**A Description**

This special provision describes designing, manufacturing, furnishing, fabricating, and installing high-load multi-rotational bearing assemblies in accordance to the details shown on the plans, standard spec 506, as directed by the engineer, and as hereinafter provided. Define high-load multi-rotational bearings as pot or disc style bearings where called for on the plans.

This work includes providing complete pot or disc bearing assemblies including sole plate, piston, sealing rings, elastomeric pad, pot, masonry plate, intermediate load distribution plates, polyether urethane disc, shear resisting mechanism, structural bolts for connecting upper portion of bearing assembly to the superstructure member, anchor bolts and non-shrink grout for attaching the masonry plate to the concrete pedestal placed on the substructure beam seat.

**A.1 Qualifications of the Manufacturer**

Demonstrate a minimum of 5 years experience in the design and manufacture of high-load multi-rotational bearings of the type specified. Be certified under the American Institute of Steel Construction Quality Certification Program – Simple Steel Bridges.

## B Materials

### B.1 General

Used new and unused materials, with no reclaimed material incorporated into the finished bearings, that conform to the applicable provisions of standard spec 506 and to the following standards. Any visual defects will be cause for rejection.

### B.2 Bearing Types

Multi-Rotational Fixed bearings allow rotation in all directions but do not allow any horizontal movement.

Multi-Rotational Guided bearings allow rotation in all directions while allowing horizontal movement in only one direction as shown on the plans and resist horizontal forces in constrained directions.

### B.3 Steel Plate

Use steel plate that conforms to the requirements of ASTM A709, Grade 36, Grade 50, or Grade 50W unless otherwise noted in the plans.

### B.4 Stainless Steel

Use stainless steel that conforms to the requirements of ASTM A240, Type 304, Number 8 finish.

### B.5 Brass

Use brass for sealing rings used in pot bearings that conforms to the requirements of ASTM B36, half-hard alloy 260.

### B.6 Polytetrafluoroethylene (PTFE)

Manufacture PTFE from pure virgin unfilled TFE resin conforming to ASTM D4894 or D4895. Provide PTFE material that is resistant to acids, alkalis and petroleum products, non-absorbing to water, stable from -360 degrees F to +500 degrees F, and non-flammable. Meet the following test requirements:

| Physical Property | ASTM Test Method | Requirement |
|---|---|---|
| Ultimate Tensile Strength, min. | D638 | 2800 psi |
| Ultimate Elongation, min. | D638 | 200% |
| Specific Gravity | D792 | 2.12 |

### B.7 Adhesive

Use adhesive to bond sheet PTFE mad of an epoxy material stable from -100 degrees F to +250 degrees F.

### B.8 Elastomer

Use an elastomeric rotational element in the construction of pot bearings containing only virgin crystallization-resistant polychloroprene (Neoprene) conforming to AASHTO M251 (ASTM D4014). Use neoprene with physical properties that conform to the specifications above with modifications as follows:

Provide Shore A Durometer hardness of 50 +/- 10 points.

Use Type 2 die to prepare samples for compression set tests.

Use neoprene conforming to minimum low temperature property Grade 4. An elastomer of a higher grade number may be used.

**B.9 Polyether Urethane Disc**

Mold the disc bearing polyether urethane disc from a polyether urethane compound. Construct it per AASHTO LRFD Bridge Construction Specifications, Section 18.3.2.8 and meet the following test requirements:

| Physical Property | ASTM Test Method | Requirement |
|---|---|---|
| Hardness, Shore D Durometer | D2240 | 45 min.<br>65 max. |
| Tensile Stress | D412 | |
| At 100% Elongation, min. | | 1500 psi |
| At 200% Elongation, min. | | 2800 psi |
| Tensile Strength, min. | D412 | 4000 psi |
| Ultimate Elongation, min. | D412 | 220% |
| Compression Set After 22 Hours | D395 (Method B) | |
| Temperature | | 158 degrees F |
| Compression set, max. | | 40% |

**B.10 Connecting Bolts**

Use high strength bolts that conform to the requirements of standard spec 506. Use lock washers that are steel, regular, helical spring washers meeting ANSI B18.21.1. Galvanize lock washers according to AASHTO M232. Coordinate all bolted connections between the bearing manufacturer and the structural steel fabricator for the steel superstructure members. Use bolts to connect the top plate of the bearing to the steel superstructure members using a "snug tight" connection as defined in American Association of State Highway Transportation Officials (AASHTO) LRFD Bridge Construction Specifications, Section 11.5.6.4.

**B.11 Anchor Bolts**

Provide anchor rods as shown on the plans and in accordance to ASTM F1554 (Grade 105) and hot-dip galvanize in accordance to AASHTO M232.

**B.12 Grout**

Use non-metallic, non-corrosive, non-shrink grout for filling anchor bolt blockouts per ASTM C1107 with minimum 28-day compressive strength called for on the plans.

**B.13 Bearing Pads**

Provide a 1/8" thick bearing pad the same size as the masonry plate conforming to standard spec 506.2.6.

## C Construction

### C.1 Design Requirements

#### C.1.1 General

Design bearings for the loads and movements given on the plans and in accordance to AASHTO LRFD Bridge Design Specifications, Section 14. Include a minimum rotation of 0.02 radians or the design rotation, whichever is greater, in bearing designs. In these rotations, include all applicable service loads and movements shown on the plans, maximum rotations caused by fabrication and installation tolerances, and allowance for uncertainty. In the designs, assume that vertical and horizontal loads occur simultaneously. Include all bearing components, load plates, sole plates, masonry plates, elastomeric pads, connection bolts, and concrete anchor bolts in the design.

Meet the following additional design requirements for the bearings:

#### C.1.2 Pots

Machine the pot from a single piece of steel. Provide the pot cavity with an inside diameter nominally equal to the diameter of the elastomeric pad. Provide a pot deep enough to permit the seal and piston rim to remain in full contact with the vertical face of the pot wall under all design loads, movements, and rotations. Do not permit contact between metal components preventing further displacements or rotation. Provide pot walls designed to withstand both the internal pressures caused by the vertical loads (considering the elastomer to behave as a fluid) and the design lateral loads.

#### C.1.3 Pistons

Machine the piston from a single piece of steel. Use a piston thickness sufficient to provide at least 0.125 inch vertical clearance between rotating and non-rotating components of the bearing assembly at maximum rotation.

Provide an outside diameter of the piston at least 0.04 inches less than the inside diameter of the pot.

For bearings carrying horizontal loads, design the piston and mating pot wall thickness to meet the requirements of AASHTO LRFD 14.7.4.7.

#### C.1.4 Sole and Masonry Plates

Design the sole and masonry plates to distribute the bearing loads into the surrounding substructure and/or superstructure. Provide a sole or masonry plate thickness as shown on the plans but not be less than 0.75 inch. Provide shim plates or thicker masonry and sole plates than are required due to strength considerations alone to meet service and installation considerations specified by the engineer, such as weldability and bearing height. Provide the masonry plate with a machined recess sized to allow the snug placement of the piston, pot or lower bearing plates.

### C.1.5 Upper and Lower Steel Plates

Apply, as appropriate, the provisions of AASHTO LRFD Bridge Design Specifications, Sections 3, 4, and 6 to the design of the upper and lower steel plates used in disc bearings. Limit the thickness of each of the upper and lower steel plates to a minimum of 0.045 x disc diameter.

### C.1.6 Guide Bars

When necessary, weld guide bars to the slide plates. Design guide bars for the specified horizontal loads, but not less than 10 percent of the vertical capacity of the bearing.

Provide guided members with their contact area within the guide bars in all operating positions. Provide a total clearance between guide bars and the guided member of 1/16 inch, +/- 1/32 inch.

### C.1.7 Finish of Steel Components

Finish all steel surfaces in contact with elastomer, PTFE, or other steel surfaces, to a smoothness of 125 micro-inch (rms) or less.

### C.1.8 Stainless Steel Sheet

Use stainless steel sheets of 16 gauge minimum thickness when the maximum dimension of the surface is less than or equal to 12.0 inches or use a minimum of 13 gauge when the maximum dimension is larger than 12.0 inches. Attach the stainless steel sheets to their backing plates by continuous fillet welding along their edges. Do no bond and/or mechanically fasten any of the stainless steel sheets. Design and attach the stainless steel sheets to their backing plates with a connection capable of resisting the frictional force set up in the bearing. Weld in accordance to AWS D1.6. Extend the backing plates beyond the edge of the stainless steel sheets to accommodate the welds and do not protrude the welds above the stainless steel sheets. It is essential that stainless steel sheets remain in contact with base metal throughout their service life such that interface corrosion does not occur.

Face the stainless steel sheets downward and completely cover the PTFE sheets in all operating positions, plus one additional inch in the direction of movement. Finish the surfaces in contact with the PTFE to a smoothness of 20 micro-inch (rms) or less.

### C.1.9 Brass Sealing Rings

Use flat brass sealing rings with a minimum width of 0.375 inch and a minimum thickness of 0.09375 inch. Use a minimum number of 3 and a maximum number of 4 rings, depending upon the design load of the bearings. Finish the rings to a smoothness of 63 micro-inch (rms) or less.

Do not exceed 0.01 inch between the ring and the wall. Provide one vertical cut at 45 degrees to the tangent with a maximum gap of 0.05 inch on each ring. Stagger the gaps a minimum of 90 degrees relative to one another when the rings are in place.

### C.1.10 PTFE Sheets

Provide PTFE sheets with a minimum thickness of 0.125 inch, and bond with epoxy into a square-edged recess of a depth equal to one-half the PTFE sheet thickness. Make the shoulders of the recesses sharp and square. Provide smooth PTFE surfaces free from blisters and bubbles. Design the PTFE sheets in accordance to AASHTO LRFD Bridge Design Specifications, Section 14.7.2.

### C.1.11 Elastomeric Disc

Individually mold, in one piece, all elastomeric discs. Do not layer or stack the discs. Cuts, gouges, or nicks from machine cutting or flash trimming are cause for rejection.

Mold the sealing groove integrally. Provide elastomeric discs square to the pad top surface and of the same nominal dimension as the brass sealing rings.

Design the discs for an average stress on the elastomer at the service limit state not to exceed 3500 psi.

### C.1.12 Polyether Urethane Disc

At the service limit state, design the disc so that its instantaneous deflection under total load does not exceed 10% of the thickness of the unstressed disc, and the additional deflection due to creep does not exceed 8% of the thickness of the unstressed disc.

Design the components of the bearing as not to lift off each other at any location at the service limit state.

Do not exceed an average stress on the disc at the service limit state of 5000 psi. If the outer surface of the disc is not vertical, compute the stress using the smallest plan area of the disc.

### C.1.13 Translation Capacity

Provide the translation capability for both guided and non-guided bearings by means of a polished stainless steel sliding plate that bears on a PTFE sheet or other approved material.

### C.1.14 Geometric Limitations

Limit the horizontal dimensions to the available bearing seat area of the concrete and the bottom flanges as detailed on the plans. Submit any modifications required to accommodate the bearings chosen to the engineer for approval prior to ordering materials. Prepare any modifications required at no additional cost to the department.

### C.1.15 Future Maintenance

Design and manufacture bearings so that future maintenance of the bearings can be performed. Demonstrate in writing how individual components of the bearings or entire assemblies could be replaced. Restrict vertical upward movement of the superstructure and structural steel, due to jacking, to less than 0.5 inch. Prepare procedures for future replacements of individual components for approval by the engineer prior to the manufacture of any bearings for this project.

## C.2 Structural Steel Coordination

Coordinate all connections and fit up between the bearing manufacturer and the structural steel fabricator. Submit any modifications from details shown in the plans required to accommodate the bearings chosen to the engineer for approval prior to ordering materials. Prepare any modifications required at no additional cost to the department.

## C.3 Submittals

Submit the following items to the engineer for review and approval prior to fabrication of the bearing assemblies:

- Shop drawings for all components and assemblies, including general arrangements and large scale details. Include with the shop drawings tables showing load capacity and movement rating, if applicable, of each bearing, including initial offset required at various ambient temperatures. Include the manufacturer's instructions for proper installation of the bearing assemblies in the shop drawings. Shop drawings which lack manufacturer's installation instructions will be returned without approval.
- Calculations showing conformance of the bearings to the design loadings, movements and other specified requirements.
- Welding procedures. Use qualification procedures of AWS D1.5 and D1.6 for all shop welders, welding operators, welding equipment, and welding procedures.
- Drawings indicating surfaces to be painted or zinc metalized in accordance to section C.7 of this special provision and type of coating used.

## C.4 Responsibility

Review and approval of the manufacturer's calculations and shop drawings by the engineer does not relieve the manufacturer of complete responsibility for their accuracy and completeness.

## C.5 Shop Inspection

The engineer reserves the right to visit the manufacturer's fabrication shop for purposes of inspecting the manufacturing, assembly, testing, and painting of the bearings. Allow the inspectors free access to the necessary parts of the manufacturer's plant. Notify the engineer at least two weeks in advance of manufacturing.

## C.6 Fabrication Requirements

### C.6.1 Tolerances

Provide fabrication and tolerances in accordance to the requirements of the AASHTO LRFD Bridge Construction Specifications, and as herein specified.

### C.6.2 Determination of Flatness

Use the following method to determine the flatness of bearings after welding and fabrication:

- Place a precision straightedge that is longer than the nominal dimension to be measured in contact with the plate surface to be measured.
- Select a feeler gage with a thickness corresponding to the flatness tolerances of the AASHTO code cited above and having a tolerance of +/-0.001 inch, and attempt to insert it under the straightedge.
- Flatness is acceptable if the feeler does not pass under the straightedge.

### C.7 Painting or Metalizing

Paint or zinc metalize the bearing assemblies in accordance to AWS C2.18-93 and AWS C2.23:2003. Do not galvanize. Do not paint or metalize the pot cavity and all surfaces covered by stainless steel or PTFE sheet. Mask off tapped holes during painting or metalizing.

### C.8 Sampling, Testing, and Inspection

Sample in accordance to the AASHTO LRFD Bridge Construction Specifications, the standard specifications, or as determined by the engineer.

Perform all testing in the presence of a representative of the department or its designated inspection agency.

Perform three separate tests. Conduct the first test on all bearing types with the bearing loaded to 150% of the vertical design capacity at the specified design rotation, but not less than 0.02 radians. Maintain uniform contact on all rotational elements during the test. Maintain the test load for at least 30 minutes.

Conduct the second test to measure the coefficient of friction on a representative sliding bearing. During this test, load the bearing to 100% of the vertical design capacity while measuring the coefficient of friction. Measure the coefficient of friction at the bearing design capacity on the $5^{th}$, $15^{th}$, and $100^{th}$ cycles at a speed of 1-inch/minute. Run a total of 100 cycles. Calculate the sliding coefficient of friction as the horizontal load required to maintain continuous sliding at a given speed divided by the bearing's design capacity vertical load. Prior to testing, apply the vertical load continuously for a minimum of one hour. Do not exceed a measured sliding coefficient of friction of 0.03 at 68 degrees F, except when approved by the engineer.

Conduct the third test on fixed and guided bearing assemblies to verify the horizontal load carrying capacity. During this test, load the bearing to 100% of the vertical design capacity while applying a horizontal load equal to 150% of the horizontal design load capacity.

Replace any bearing showing failure of the sealing rings or other component parts during or after these load tests at no additional cost to the department.

Do not allow the following during testing:

- Binding of bearing components or other movement restrictions under design displacements and/or rotations.
- "Lift-off" or separation between plates and PTFE or elastomer under rotation
- The measured static and dynamic coefficient of friction exceeds 3%.
- Cracks or permanent deformation of the PTFE, stainless steel, other components, or welds.
- Extrusion of the elastomer or signs of cold flow of the PTFE.
- Instantaneous compression deflection under total load exceed 10% of the thickness of the unstressed disc for disc bearings.

Furnish the engineer with certified copies of the test reports on the physical properties of the component materials for the furnished bearings and a certification by the bearing manufacturer stating the furnished bearing assemblies conform to all the requirements shown on the plans and specifications contained herein.

Furnish the engineer random samples of component materials used in the bearings for testing by the department. The department reserves the right to have the manufacturer perform the specified load tests on one or more of the furnished bearings. A furnished bearing is defined as a high-load multi-rotational bearing assembly that has been delivered to the site. Replace the tested bearing, if it shows failure, at no additional cost to the department. Load test the remaining bearings for acceptance at the manufacturer's expense.

**C.9 Identification, Storage, and Handling**

Fully assemble each bearing at the manufacturing plant and deliver to the construction site as complete units. Submit copies of all delivery tickets to the engineer.

Stamp each sole plate, intermediate load plate, and masonry plate on their edge faces with the manufacturer's name, bearing type or model number, structure number, bearing number as shown on the plans, the installed location, bearing orientation, centerlines for alignment in the field, upstation direction, and top surface location.

Stamp the sole plate of each bearing assembly by the bearing manufacturer prior to shipping of the sole plates to the steel fabricator or construction site. Place the stamp on a surface visible after installation so it remains clearly visible after storage, painting, shipment to the fabricator, and delivery to the project field site.

Store each bearing in the fabrication shop or at an independent warehouse in a clean, dry, and covered facility until required at the project construction site. Transport and deliver the bearings to the project site when required for installation by others under a separate construction and erection contract. While in storage, keep the bearings banded, wrapped, and secured in a condition suitable for shipment. Store and ship the bearings in moisture-proof and dust-proof covers. Wrapping material is subject to the engineer's approval. Do not stack the bearings. Hold the bearings together with removable restraints so sliding surfaces are not damaged.

Do not disassemble the bearing devices prior to installation without the knowledge and consent of the engineer and manufacturer.

Repair or replacement of damaged bearing assemblies, in part or in whole, will be at the discretion of the engineer with no additional cost to the department.

**C.10 Installation**
Install the bearings in strict accordance to the manufacturer's instructions as approved by the engineer. Furnish technical assistance to the contractor and the engineer through the personal services of a technical representative who is a full time employee of the manufacturer during installation of the bearings. The manufacturer's technical representative is required to be present for the placement of the first bearing. At the option of the engineer or contractor, the technical representative may be required to be present for the placement of any number of additional bearings. Take measures to limit bearing rotation to 0.02 radians during construction.

**D Measurement**
The department will measure Bearings High-Load Multi-Rotational Fixed and Bearings High-Load Multi-Rotational Guided by the unit for each bearing, acceptably completed in accordance to the contract.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.4120 | Bearings High-Load Multi-Rotational Fixed | Each |
| SPV.0060.4125 | Bearings High-Load Multi-Rotational Guided | Each |

Payment is full compensation for designing, manufacturing, fabricating, galvanizing, metalizing, painting, testing, storing, furnishing, transporting, and installing acceptable bearings – including sole plate, bearing assembly, masonry plate, bearing pad, connection bolts, anchor bolts and non-shrink grout; for preparing shop drawings; for providing technical assistance at the project site.

## 261. Floor Drain Special, Item SPV.0060.4130.

**A Description**
This work consists of furnishing and installing bridge floor drains in accordance to standard spec 514, as shown on the plans, and as hereinafter provided.

**B Materials**
All materials shall conform to standard spec 514.2 except as modified herein.

**C Construction**
All construction methods shall conform to standard spec 514.3.

**D Measurement**
The department will measure Floor Drain Special by the unit for each floor drain, acceptably completed in accordance to standard spec 514.4(1).

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.4130 | Floor Drain Special | Each |

Payment is full compensation in accordance to standard spec 514.5(2).

## 262. Anchor Slab Inlet Cover Special, Item SPV.0060.4135.

**A Description**
This special provision describes specialized inlet grates and frames cast in anchor slabs as detailed on the plans. Conform to standard spec 611, as modified in this special provision.

**B (Vacant)**

**C (Vacant)**
Construct the specialized inlet grates and frames as detailed on the plans.

**D Measurement**
The department will measure Anchor Slab Inlet Special as each individual, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.4135 | Anchor Slab Inlet Cover Special | Each |

Payment is full compensation conforming to standard spec 611.5. Concrete masonry and bar steel reinforcement for the anchor slab will be paid for separately.

## 263. Tieback Anchors, Item SPV.0060.4140; Tieback Anchor Performance Tests, Item SPV.0060.4145.

**A Description**
**A.1 General**
(1) The work under this item consists of permanent, pressure-grouted or post grouted, ground anchors designed, furnished, installed, tested, and stressed in accordance to these special provisions and as shown on the plans.

(2) Install ground anchors that shall develop the load carrying capacity indicated on the plans in accordance to the testing subsection of these special provisions.

(3) The contractor has the option to provide an alternate permanent earth anchor system with the approval of the department. The contractor shall then be responsible for selecting the permanent earth anchor type, method of installation, and for determining the bond length and anchor diameter that shall develop the factored design loads indicated on the plans. The analysis, design, construction and testing of the post tiebacks shall conform to the AASHTO LRFD Bridge Design Specifications Fifth Edition with 2010 Interim and the AASHTO LRFD Bridge Construction Specifications. Third Edition with 2010 and 2011 Interims.

**A.2 Qualifications of the Contractor**

(1) The contractor performing the work described in these special provisions must have installed ground anchors for excavation retaining walls for a minimum of 5 years. Submit a list containing at least five projects where the contractor has installed ground anchors. Specifically, experience must demonstrate competence in the use of pressure or post grouting. At least one project must show evidence of permanence with a 5-year minimum age. The project experience documentation must include a brief project description, construction methods used during installation, local soil conditions, actual construction time and contact information consisting of an individual's name and current phone number. Contacts must be capable of verifying project participation.

(2) Submit staff experience records of the engineer, drill operators, and on-site supervisors who will be assigned to the project. The staff records must contain a summary of each individual's experience and it must be complete enough for the engineer to determine whether each individual has satisfied the following qualifications.

(3) Assign an engineer to supervise the work who has at least four years of experience in the design and construction of anchored earth retaining structures in similar soils. Do not use consultants or manufacturer's representatives in order to meet the requirements of this section. Drill operators and on-site supervisors must have a minimum of one-year experience installing ground anchors with the contractor's organization.

(4) Submit your qualifications and staff experience records at the preconstruction meeting or 21 calendar days prior to the start of ground anchor installation, whichever date is earlier. The engineer will approve or reject the contractor's qualifications and staff experience records within 14 calendar days after receipt of the submission. Do not start work on any ground anchor installation until approval of the contractor's qualifications and staff experience are given by the engineer. The engineer may suspend the ground anchor work if the contractor substitutes unqualified personnel for approved personnel during construction. If work is suspended due to the substitution of unqualified personnel, the adjustment in contract time resulting from the suspension of work will not be allowed.

## A.3 Submittals

(1) Prepare and submit to the engineer for review and approval working drawings and a design submission describing the ground anchor system or systems intended for use. The working drawings and design submission must be submitted 30 business days before the commencement of the ground anchor work. The working drawing and design submission must include certificates of compliance for the following materials, if used. The certificates must state that the material or assemblies to be provided will fully comply with the requirements of the contract.

- Prestressing steel or bar;
- Portland cement;
- Prestressing hardware;
- Bearing plates.

(2) The engineer will approve or reject the contractor's submittals within 30 business days after receipt of the submission.

(3) Submit to the engineer for review and approval or rejection mill test reports for the prestressing steel and the bearing plate steel. The engineer may require the contractor to provide samples of any ground anchor material intended for use on the project. The engineer will approve or reject the prestressing steel and bearing plate steel within five business days after receipt of the test reports. Do not incorporate the prestressing steel and bearing plates in the work without the engineer's approval.

(4) Submit to the engineer for review and approval or rejection calibration data for each test jack, pressure gauge and reference pressure gauge to be used. The engineer will approve or reject the calibration data within 5 business days after receipt of the data. Do not commence testing until the engineer has approved the jack, pressure gauge, and reference pressure gauge calibrations.

(5) Submit to the engineer within 10 calendar days after completion of the ground anchor work, a report containing the following information:

- As-Built plans showing the location and vertical and horizontal orientation of the tiebacks, capacity, tendon type, total length, and unbonded length as installed.
- Steel tendon, corrosion protection elements and grout certifications and/or mill reports.
- Grouting records indicating the following:
    1. Cement type;
    2. Cube test strength results;
    3. Grout volume for bonded and unbonded lengths;
    4. Grout pressure.
- Show on the as-built plans the type of testing performed for each post tieback.
- Tieback tests results (Performance and proof test data with load-anchor elongation curves).
- Other records as required by standard spec 106.

**A.4 Definitions**

(1) Anchorage Devices. The anchor head wedges or nuts, which grip the prestressing steel.

(2) Bearing Plate. The steel plate, which distributes the ground anchor force to the structure.

(3) Bond Length. The length of the ground anchor, which is bonded to the ground and transmits the tensile force to the soil or rock.

(4) Factored Design Load. The factored design load is the maximum anticipated factored load that will be applied to the ground anchor during its service life after stressing and testing have been completed. Design loads and applicable load factors are per AASHTO LRFD Bridge Design Specifications, Fifth Edition with 2010 Interim.

(5) Ground Anchor. A system, referred to as a tieback or an anchor, used to transfer tensile loads to soil or rock. A ground anchor includes all prestressing steel, anchorage devices, bearing plates, grout, coatings, corrosion protection, and sheathings and couplers if used.

(6) Minimum Specified Ultimate Tensile Strength. The minimum breaking strength of the prestressing steel as defined by the specified standard.

(7) Tendon Bond Length. The length of the tendon, which is bonded to the anchor grout.

(8) Total Anchor Length. The unbonded length plus the tendon bond length.

(9) Unbonded Length. The length of the tendon, which is not bonded to the grout. The grout surrounding the unbonded length is a void filler and provides corrosion protection.

**B Materials**

**B.1 References**

(1) **AASHTO Standards**

- M85 Portland Cement
- M183 Structural Steel
- M275 Threadbar Prestressing Steel
- M203 Seven-wire, low relaxation strands
- M222 High-Strength Low-alloy Structural Steel with 50,000 psi Minimum Yield Point to 4 Inches Thick
- M252 Corrugated Polyethylene Drainage Tubing

(2) **ASTM Standards**

- A-53 Specification for Steel Pipe
- A-252 Specification for Welded and Seamless Steel Pipe Files
- A-500 Specification for Cold-formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes

- A-722 Threadbar Prestressing Steel
- A-779 Compact Seven-wire, low relaxation strands
- D-1248 Specification for Welded and Seamless Steel Pipe Files
- D-1784 Specification for Rigid Poly Vinyl Chloride (PVC) Compounds and Chlorinated Poly Vinyl Chloride (CPVC) Compounds
- D-4101 Specification for Propylene Plastic Injection and Extrusion Materials

(3) **Post-Tensioning Institute Standards**

- "Guide Specification for Post-Tensioning Materials," Post-Tensioning Manual, Post Tensioning Institute, 6th Edition, 2006.
- "Specification for Unbonded Single Strand Tendons," Post-Tensioning Institute, 2nd Edition, 2003.
- "Recommendations for Prestressed Rock and Soil Anchors," Post-Tensioning Institute, 4th Edition, 2004.

## B.2 Tieback Anchors

(1) Admixtures that control bleed, improve flowability, reduce water content, and retard set may be used in the grout subject to the approval of the engineer. Expansive admixtures may only be added to the grout used for filling sealed encapsulations, trumpets, and anchorage covers. Accelerators are not permitted. Admixtures, if used, must be compatible with the prestressing steels and mixed in accordance to the manufacturer's recommendations.

(2) Fabricate exposed anchorage covers from steel or ductile cast iron with a minimum thickness of 0.10 inches. Securely attach the cover to the anchorage device or bearing plate. If the cover is to be grease filled, then the cover must form a permanent watertight enclosure for the anchorage device.

(3) Use anchorage devices capable of developing 95 percent of the minimum specified ultimate tensile strength of the prestressing steel tendon. The anchorage devices must conform to the static strength requirements of section 3.1.6 (1) and section 3.1.8 (1) of the PTI "Guide Specification for Post-Tensioning Materials".

(4) Fabricate the bearing plate from steel conforming to ASTM A572 Grade 50 or AASHTO M223 Grade 50 specifications.

(5) Fabricate the bondbreaker from a smooth plastic tube or pipe having the following properties:

- Resistant to chemical attack from aggressive environments, grout or grease.
- Resistant to aging by ultra-violet light.
- Fabricated from material nondetrimental to the tendon or bar.
- Capable of withstanding abrasion, impact, and bending during handling and installation.
- Enable the tendon to elongate during testing and stressing.
- Allow the tendon to remain unbonded after lock-off.

(6) Use Type I, II, or III Portland cement conforming to AASHTO M85 for grout. The corrosion inhibiting grease must conform to the requirements of section 3.2.5 of the PTI, "Specification for Unbonded Single Strand Tendons".

(7) Fabricate heat shrinkable tubes from a radiation crosslinked polyolefin tube internally coated with an adhesive sealant. Before shrinking, the tube must have a nominal wall thickness of 24 mils. The adhesive sealant inside the tube must have a nominal thickness of 20 mils.

(8) Fabricate ground anchor tendons from a single bar. Additionally, the ground anchor tendons must conform to the following:

- Steel bars conforming to AASHTO M275, or ASTM A722.
- Seven-wire, low relaxation strands conforming to M203.

(9) Use steel couplers capable of developing 95 percent of the minimum specified ultimate tensile strength of the tendon.

(10) Use a sheath as part of the corrosion protection system for the unbonded length portion of the tendon. Fabricate the sheath from one of the following:

- A polyethylene tube pulled or pushed over the prestressing steel. The polyethylene must be Type II, III, or IV as defined by ASTM D-1248 (or approved equal). The tubing must have a minimum wall thickness of 60 mils plus/minus 10 mils.
- A hot-melt extruded polypropylene tube. The polypropylene must be cell classification PP 210 B5554211 as defined by ASTM D-4101 (or approved equal). The tubing must have a minimum wall thickness of 60 mils plus/minus 10 mils.
- A hot-melt extruded polyethylene tube. The polyethylene must be high density Type III as defined by ASTM D-3350 and ASTM D1248 (or approved equal). The tubing must have a minimum wall thickness of 60 mils plus/minus 10 mils.
- Steel tubing conforming to ASTM A-500, minimum wall thickness of 0.20 inches.
- Steel pipe conforming to ASTM A-53, Schedule 40 minimum.
- Plastic pipe conforming to ASTM A-1185, Schedule 40 minimum.
- A corrugated tube conforming to the requirement of the tendon bond length encapsulation.

(11) Spacers must permit grout to freely flow up the drill hole. Fabricate spacers from plastic, steel, or material that is nondetrimental to the prestressing steel. Do not use wood. A combination centralizer-spacer may be used.

(12) Fabricate the trumpet used to provide a transition from the anchorage to the unbonded length corrosion protection from a steel pipe or tube conforming to the requirements of ASTM A-53 for pipe or ASTM A-500 for tubing. The trumpet must have a minimum wall thickness of 0.125 inches for diameters up to four inches and 0.20 inches for larger diameters.

(13) Use potable water for mixing grout.

(14) Fabricate tendons in accordance to the following specifications.

- The tendons may be either shop or field fabricated from prestressing steel and materials conforming to the requirements of the Materials subsection of these special provisions. Fabricate the tendon as shown on the approved working drawings.
- The cement grout cover must provide corrosion protection of the tendon.
- Position spacers so their center-to-center spacing does not exceed ten feet. In addition, locate the upper spacer a maximum of five feet from the top of the tendon bond length, and locate the lower spacer a maximum of five feet from the bottom of the tendon bond length.
- The minimum unbonded length of the bar tendon must be 15 feet or as indicated on the plans or the approved working drawings, whichever is greater. The unbonded length must extend a minimum of 5 feet beyond the critical failure surface measured from the lowest subgrade level from the back of the retaining wall in the soil mass being retained by the wall. If the entire drill hole (tendon bond length and unbonded length) is grouted in one operation, then for the corrosion protection of the unbonded length provide either a sheath completely filled with corrosion inhibiting grease or grout, or a heat shrinkable tube internally coated with an elastic adhesive. If grease is used under the sheath, make provisions to prevent the grease from escaping at the ends of the sheath. The grease must completely coat the tendon, fill the void between the tendon and the sheath, and fill the interstices between the wires of the seven-wire strands. Provide a transition between the bond length and the unbonded length corrosion protection as illustrated in the working drawings. If the sheath is grout filled, a separate bond breaker must be provided. The bond breaker must prevent the tendon from bonding to the grout surrounding the unbonded length. If a grease-filled sheath corrosion protection is provided and the drill hole above the bond length is grouted after the ground anchor has been locked off, then grout the tendon inside a second sheath.
- The total anchor length must not be less than the minimum length indicated on the plans or the approved working drawings.
- Size the bearing plates so that:
    1. The bending stresses in the plate do not exceed the yield strength of the steel when a load equal to 95 percent of the minimum specified ultimate tensile strength of the tendon is applied;
    2. The average bearing stress on the concrete does not exceed that recommended in section 3.1.7 of the PTI, “Guide Specification for Post-Tensioning Materials”.

- Weld the trumpet to the bearing plate. The trumpet must have an inside diameter equal to or larger than the hole in the bearing plate. The trumpet must be long enough to accommodate movements of the structure during testing and stressing. For strand tendons with encapsulation over the unbonded length, the trumpet must be long enough to enable the tendon to make a transition from the diameter of the tendon in the unbonded length to the diameter of the tendon at the anchorhead without damaging the encapsulation. Trumpets filled with corrosion-inhibiting grease must have a permanent Buna-N synthetic rubber or approved equal seal provided between the trumpet and the unbonded length corrosion protection. Trumpets filled with grout must have a temporary seal provided between the trumpet and the unbonded length corrosion protection or the trumpet must overlap the unbonded length corrosion protection by a minimum of one foot and fit tightly over the unbonded length corrosion protection.

(15) Damage to the prestressing steel because of abrasions, cuts, nicks, welds and weld splatter will be cause for rejection by the engineer. Protect the prestressing steel if welding is to be performed in the vicinity. Grounding of welding leads to the prestressing steel is forbidden. Protect the prestressing steel from dirt, rust or deleterious substances. If heavy corrosion or pitting is noted, the engineer will reject the affected tendons.

(16) Use care in handling and storing the tendons at the site. Before inserting a tendon in the drill hole, the contractor and the engineer will examine the tendon for damage to the encapsulation and the sheathing. If, in the opinion of the engineer, the smooth sheathing has been damaged, repair it with ultra high molecular weight polyethylene tape.

## C Construction

### C.1 Anchor Installation

#### C.1.1 General

(1) Unless otherwise directed, select the drilling method, pressure grouting, post grouting, the grouting procedure, and the grouting pressure used for the installation of the ground anchor.

#### C.1.2 Drilling Method

(1) Unless otherwise directed, the contractor may choose to utilize rotary drilling with casing, duplex or dual rotary drilling method, rotary drilling with stabilizing fluid, percussion drilling with casing, hollow stem auger drilling or driven casing provided that the anchor hole is maintained in a stable condition at all times, preventing collapse or excessive over-excavation of soils. Pervasive hole caving or ground loss problems must be repaired by grouting at the contractor's expense to prevent damage to the adjacent ground mass and supported structures.

(2) Use duplex drilling when drilling anchors in predominately granular soils, soils below the ground water table, or when directed by the engineer to use duplex drilling when other drilling methods do not produce satisfactory results.

(3) At the ground surface, locate the drill hole within twelve inches of the location shown on the plans or the approved working drawings. Locate the drill hole so the longitudinal axis of the drill hole and the longitudinal axis of the tendon are parallel. In particular, do not drill the ground anchor hole in a location that requires the tendon to be bent in order to enable the bearing plate to be connected to the supported structure. At the point of entry, the horizontal angle made by the ground anchor and the structure must be within plus/minus three degrees of a line drawn perpendicular to the plane of the structure unless otherwise shown on the plans or approved working drawings. Do not extend the ground anchors beyond the right-of-way or easement limits shown on the plans.

(4) The tendon must be inserted into the drill hole to the desired depth without difficulty. When the tendon cannot be completely inserted, remove the tendon from the drill hole and clean or redrill the hole to permit insertion. Do not drive or otherwise force partially inserted tendons into the hole.

**C.1.3. Grouting Method**

(1) Use a neat cement grout. The cement must not contain lumps or other indications of hydration. Admixtures, if used, must be mixed in accordance to the manufacturer's recommendations.

(2) Use grouting equipment that produces a grout free of lumps and undispersed cement. Use a positive displacement grout pump. The pump must be equipped with a pressure gauge in order to monitor grout pressures. The pressure gauge must be capable of measuring pressures of at least 150 psi or twice the actual grout pressures used by the contractor whichever is greater. The grouting equipment must be sized to enable the grout to be pumped in one continuous operation. The mixer must be capable of continuously agitating the grout.

(3) Inject the grout from the lowest point of the drill hole. The grout may be pumped through grout tubes, casing, hollow-stem-augers, or drill rods. The grout may be placed before or after insertion of the tendon. Record the quantity of the grout and record the grout pressures. The grout pressures and grout takes must be controlled to prevent uncontrolled heave or fracturing.

(4) The grout above the top of the bond length may be placed at the same time as the bond length grout but it may not be placed under pressure. The grout at the top of the drill hole must not contact the back of the structure or the bottom of the trumpet.

(5) Upon completion of grouting and post grouting, the grout tube may remain in the hole but it shall be filled with grout. Do not load the tendon for a minimum of three days after grouting.

## C.2 Installation of Trumpet and Anchorage

(1) The corrosion protection surrounding the unbonded length of the tendon must extend up beyond the bottom seal of the trumpet or one foot into the trumpet if no trumpet seal is provided. If the protection does not extend beyond the seal or sufficiently far enough into the trumpet, extend the corrosion protection or lengthen the trumpet.

(2) The corrosion protection surrounding the unbonded length of the tendon must not contact the bearing plate or the anchor head during testing and stressing. If the protection is too long, trim the corrosion protection to prevent contact.

(3) Completely fill the trumpet with corrosion inhibiting grease or grout. Trumpet grease can be placed any time during construction. Place trumpet grout after the ground anchor has been tested and stressed. Demonstrate to the engineer that the procedures selected for placement of either grease or grout will produce a completely filled trumpet.

(4) Cover all anchorages permanently exposed to the atmosphere with a corrosion inhibiting grease-filled or grout-filled cover. Demonstrate to the engineer that the procedures selected for placement of either grease or grout will produce a completely filled cover.

## C.3 Anchor Testing

### C.3.1 General

(1) Test each ground anchor. Do not apply any load greater than 10 percent of the factored design load to the ground anchor prior to testing. The maximum test load must not exceed 80 percent of the minimum specified ultimate tensile strength of the tendon. The test load must be simultaneously applied to the entire tendon. Stressing of single elements of multi-element tendons is not permitted.

(2) Supply the following testing equipment:

- A dial gauge or veneer scale capable of measuring to 0.01 inches used to measure the ground anchor movement. The movement-measuring device must have a minimum travel equal to the theoretical elastic elongation of the total anchor length at the maximum test load and it must have adequate travel so the ground anchor movement may be measured without resetting the device.
- A hydraulic jack and pump used to apply the test load. The jack and a calibrated pressure gauge must be used to measure the applied load. The jack and pressure gauge must be calibrated as a unit by an independent firm. The calibration must have been performed within forty-five business days of the date submitted. Testing cannot commence until the engineer has approved the calibration. The pressure gauge must be graduated in 100-psi increments or less. The ram travel of the jack must not be less than the theoretical elastic elongation of the total anchor length at the maximum test load.

- A calibrated reference pressure gauge must also be kept at the site. Calibrate the reference gauge with the test jack and pressure gauge.
- Provide an electrical resistance load cell and readout for use when performing a creep test.
- Place the stressing equipment over the ground anchor tendon in such a manner that the jack, bearing plates, load cells and stressing anchorage are axially aligned with the tendon and the tendon is centered within the equipment.

**C.3.2 Performance Tests**

(1) Install and conduct the performance tests. The anchors for the performance test must be similar to the production anchors shown on the plans, and must be selected as directed by the engineer. Record the encountered soil information through the entire depth of drilling holes. Submit performance test results and soil information to the engineer for approval. If the tested anchor(s) fail(s) to pass the performance tests, at least five workdays shall be allowed for the engineer to evaluate the test anchor(s) and the soil condition. Additional performance tests may be required upon request from the engineer. The additional performance test(s), as required, and time for the engineer to evaluate the test anchor(s), will be included in the work and will not be paid for separately. Do not order material for production anchors until the approval of the performance test results are given.

(2) Conduct performance tests in accordance to the following procedures on five percent of the ground anchors or a minimum of three ground anchors per wall, whichever is greater. The engineer will select the ground anchors to be performance tested. Test the remaining ground anchors in accordance to the proof test procedures.

(3) Conduct performance tests by incrementally loading and unloading the ground anchor in accordance to the following schedule. Raise the load from one increment to another immediately after recording the ground anchor movement. Measure and record the ground anchor movement to the nearest 0.01 inches with respect to an independent fixed reference point at the alignment load and at each increment of load. Monitor the load with a pressure gauge. Place the reference pressure gauge in series with the pressure gauge during each performance test. If the load determined by the reference pressure gauge and the load determined by the pressure gauge differ by more than ten percent, recalibrate the jack, pressure gauge and reference pressure gauge at no expense to the department. At load increments other than the maximum test load, hold the load just long enough to obtain the movement reading.

(4) **Performance Test Schedule**

| Load |
|---|
| AL |
| 0.20 FDL* |
| AL |
| 0.20 FDL |
| 0.40 FDL* |
| AL |
| 0.20 FDL |
| 0.40 FDL |
| 0.60 FDL* |
| AL |
| 0.20 FDL |
| 0.40 FDL |
| 0.60 FDL |
| 0.75 FDL |
| AL |
| 0.20 FDL |
| 0.40 FDL |
| 0.60 FDL |
| 0.75 FDL |
| 1.00 FDL* |
| AL |
| 0.20 FDL |
| 0.40 FDL |
| 0.60 FDL |
| 0.75 FDL |
| 0.90 FDL |
| 1.15 FDL* (Max. test load) |
| Reduce to lock-off load – 0.60 FDL |

Where, AL = Alignment Load
FDL = Factored Design Load for Tieback
* = Graph required

(5) Hold the maximum test load in a performance test for ten minutes. Repump the jack as necessary in order to maintain a constant load. Start the load-hold period as soon as the maximum test load is applied. Measure and record at 1, 2, 3, 4, 5, 6, and 10 minutes the ground anchor movement with respect to a fixed reference. If the ground anchor movement between one minute and ten minutes exceeds 0.04 inches, hold the maximum test load for an additional 50 minutes. If the load-hold period is extended, record the ground anchor movement at 15, 20, 25, 30, 45 and 60 minutes.

(6) Plot the ground anchor movement versus load for each load increment marked with an asterisk (*) in the performance test schedule and plot the residual movement of the tendon at each alignment load verses the highest previously applied load.

### C.3.3 Proof Tests

(1) Perform the proof test by incrementally loading the ground anchor in accordance to the following schedule. Raise the load from one increment to another immediately after recording the ground anchor movement. Measure and record the ground anchor movement to the nearest 0.01 inches with respect to an independent fixed reference point at the alignment load and at each increment of load. Monitor the load with a pressure gauge. At load increments other than the maximum test load, hold the load just long enough to obtain the movement reading.

(2) Hold the maximum test load in a proof test for ten minutes. Repump the jack as necessary in order to maintain a constant load. Start the load-hold period as soon as the maximum test load is applied. Measure and record the ground anchor movement with respect to a fixed reference at 1, 2, 3, 4, 5, 6, and 10 minutes. If the ground anchor movement between 1 minute and 10 minutes exceeds 0.04 inches, hold the maximum test load for an additional 50 minutes. If the load-hold period is extended, record the ground anchor movements at 15, 20, 25, 30, 45 and 60 minutes.

(3) **Proof Test Schedule**

| Load |
|---|
| AL |
| 0.20 FDL |
| 0.40 FDL |
| 0.60 FDL |
| 0.75 FDL |
| 1.00 FDL |
| 1.15 FDL (Max. test load) |
| Reduce to lock-off load – 0.60 FDL |

Where, AL = Alignment Load
FDL = Factored Design Load for Tieback

(4) Plot the ground anchor movement versus load for each load increment in the proof test.

(5) Submit proof tests for review by the engineer within 7 days of testing.

### C.3.4 Ground Anchor Load Test Acceptance Criteria

(1) A performance- or proof-tested ground anchor with a 10-minute load-hold period is acceptable if the:

- The tieback resists the maximum test load with less than 0.04-inches of movement between 1 minute and 10 minutes.
- The total elastic movement of the tendon measured at the anchor head obtained from a proof or performance test must exceed 80 percent of the theoretical elastic elongation of the stressing or unbonded length for load increments 0.25 DL and above.

- The total movement of tendon must not exceed 100 percent of the theoretical elastic elongation of the unsupported length plus 50 percent of the supported length.

(2) A performance- or proof-tested ground anchor with a 60-minute load-hold period or a creep-tested ground anchor is acceptable if the:
- Ground anchor carries the maximum test load with a creep rate that does not exceed 0.08 inches/log cycle of time; and
- Total movement at the maximum test load exceeds 80 percent of the theoretical elastic elongation of the unbonded length.

(3) If the total movement of the ground anchors at the maximum test load does not exceed 80 percent of the theoretical elastic elongation of the unbonded length, replace the ground anchor at no additional cost to the department.

(4) Ground anchors that have a creep rate greater than 0.08-inches/log cycle of time can be incorporated in the finished work at a load equal to one-half its failure load. The failure load is the load carried by the ground anchor after the load has been allowed to stabilize for ten minutes.

(5) When a ground anchor fails, modify the design and/or the construction procedures. These modifications may include, but are not limited to, installing replacement ground anchors, reducing the factored design load by increasing the number of ground anchors, modifying the installation methods, increasing the bond length or changing the ground anchor type. Any modifications of design or construction procedures including installing additional anchors shall be at the contractor's expense and at no additional charge to the department.

(6) Upon completion of the test, reduce the load to the lock-off load indicated on the plans and transfer the load to the anchorage device. The ground anchor may be completely unloaded prior to lock off. After transferring the load and before removing the jack, record a lift-off reading. The lift-off reading must be within ten percent of the specified lock-off load. If the load is not within ten percent of the specified lock-off load, reset the anchorage and record another lift-off reading. Repeat this process until the desired lock-off load is obtained.

**D Measurement**

(1) The department will measure Tieback Anchors by each individual tieback anchor acceptably completed that are capable of carrying the load specified on the plans, which includes a proof test of each anchor.

(2) The department will measure Tieback Anchor Performance Tests by each individual performance test, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.4140 | Tieback Anchors | Each |
| SPV.0060.4145 | Tieback Anchor Performance Tests | Each |

Payment is full compensation for drilling; grouting; furnishing all steel, bearing plates and corrosion-protection materials required; tensioning; testing; and for designing and providing additional or remediation anchors for failed ground anchors.

## 264. Drilled Foundation Shaft Base Grouting, Item SPV.0060.4150.

### A Description

This special provision describes furnishing all materials and labor necessary to perform base grouting of drilled shafts as shown in the plans or as directed by the engineer. The base grouting will include grouting of test drilled shafts and production drilled shafts. The test shafts will be base grouted prior to production shaft grouting to confirm the grouting procedure.

The base grouting subcontractor shall be prequalified along with the drilled shaft specialty contractor as one team. The base grouting subcontractor and the specialist shall have documented experience of successfully performing base grouting of drilled shaft tips on at least three similar projects in the last five years. The base grouting specialist can be a direct employee of the drilled shaft contractor or from an independent company.

The contractor shall submit a base grouting plan a minimum of 30 days prior to the drilled shaft construction. The base grouting plan shall be approved before drilled shaft construction begins. The plan shall at least address grout system details including plans of the rubber-sleeved ports, grouting equipment and backup, grout mix requirements, grouting procedures, monitoring procedures, termination criteria specified in paragraph C.2 including minimum grout volume to be calculated by the contractor using given equation, and contingency plans.

The contractor shall provide a minimum of 30 days notice to the engineer before the construction of drilled shaft to be base grouted begins.

### B Materials

The base grouting specialty subcontractor shall supply all materials, personnel and equipment as described below and as required by the contractor to adequately perform base grouting. Such materials and equipment include:

- A grouting pump capable of supplying 800 psi of grout pressure to the tip of the base grouted shafts. The grout pump shall be a piston pump with at least 4 pistons and rated for a maximum pressure of 800 psi. The grout pump shall be equipped with a pressure gage capable of being monitored by the engineer. The pump must be serviced within the last 3 months or brand new, and be able to supply a continuous flow of grout.

- Grout plant with a minimum capacity of 10 cubic feet (300 liters). The plant shall be equipped with a colloidal mixer and an agitated holding tank.

- Grout cell (grout plate assembly) in sleeve-ports type (tube-a-manchette) with a steel plate and necessary accessories for installation.

- Three dial gauges with accuracy of 0.001 inches, manual readout, and minimum plunger length of 2 inches.

- Grout volume measurement equipment with manual readout.

- Survey level capable of reading to 0.001 feet (0.3 mm).

- Grout

  Grout shall consist of Type I-II Portland cement and water with a water cement ratio of 0.5 and an allowable range of 0.45 to 0.5 for shaft tip in clay and 0.4 to 0.6 for shaft tip in sand. NO SAND MIXES CAN BE USED. The grout shall be mixed thoroughly with a high efficiency mixer capable of producing a semi-colloidal suspension. A mixer assembly capable of mixing, holding, and pumping is recommended. The grout cube strength shall be at least 2500 psi after 28 days using "ASTM-C109/C109M-98 Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (using 2 in or 50 mm cube specimens)."

  The base grouting subcontractor is responsible for developing a grout mix with adequate working life (set time) at the anticipated grout pressures and temperatures and compatible with the proposed grouting equipment. The use of set retarders or other additives in the grout mix to achieve this is permitted. The mix shall conform to the minimum compressive strength requirements given above.

- Grout Tubes

  The grout tubes shall have a minimum inner diameter of 1 inch and be made of SCH 80 PVC pipe. Sections of pipe shall be joined with SCH 80 PVC couplings. Alternatively, base grouting can be performed through the CSL tubes. If CSL tubes are used, the requirements for grout tubes shall be also applied to these CSL tubes. All grout tube joints within the top ten feet of the shaft shall be prepared by sanding and priming prior to gluing. The grout tubes should extend approximately 5 feet above the top of the shaft or ground surface elevation (whichever is higher) and terminated with an NPT Male threaded fitting with cap. A minimum of eight grout tubes (four runs of two tubes) shall be installed in each shaft equally spaced within the reinforcing cage. The rubber sleeved ports shall be spaced at 12 to 15 inches on center. All supply lines and hoses shall be rated for at least 800 psi.

- Potable fresh water, 1 ” supply line and pump.

- Reference beams and the necessary supports. Reference beams shall be sufficiently stiff to support the instrumentation such that excessive variations in readings do not occur and cross connected to provide additional rigidity.

- A generator capable of 11 kW continuous and 30 kW peak of three-phase electric power for operating the electric grout pump.

Redundant base grouting equipment must be provided and present in proximity to the site to mitigate risk and minimize downtime in the event of grouting equipment malfunction or break down. If approved by the engineer, in lieu of a redundant grout pump, a redundant water pump to flush the grout lines in the event of grout pump or grout equipment malfunction or failure is acceptable.

## C Construction

### C.1 Preparation for Base Grouting

The Contactor shall notify engineer of the shaft installation and base grouting schedule 30 days prior to commencing of shaft installation. Construction of base grouting Drilled Shaft Foundations is identical to conventional drilled shaft construction with the following exceptions: the installation of grout tubes and grout cells; reinforcing cage placed in soft contact with the bottom of the excavation; and the base grouting procedure.

Grout tubes shall be installed in the reinforcing cage at the time of cage construction. They shall be installed from the tip of shaft extending approximately 5 feet above the shaft top. This shall include providing and installing threaded male adapters on the top of each tube. They shall be securely fastened at a maximum of five-foot intervals along the cage, with the exception of the bottom ten feet to allow for grout cell installation.

Grout cells shall be installed following cage erection. The reinforcing cage shall be lowered onto the grout cell after cage erection in order to minimize cell damage from cage racking. The lower ten feet of the grout tubes (previously left unrestrained) shall be aligned with the grout cell slip tube connections and secured to the reinforcing cage. Supplemental grout cell restraints shall be furnished by the grout cell provider and firmly affixed to the reinforcing cage.

When installing the reinforcing cage in the excavation, it shall be lowered until coming into soft contact with the bottom of the excavation. Full weight of the reinforcing cage shall be top supported and shall not be applied to grout cell to minimize potential cell damage and prevent inadvertent cage buckling and / or poor cage alignment.

If the base grouting subcontractor wants to utilize a poorly graded aggregate with no fines (no material passing a No. 200 sieve) in the grout cell for grout distribution and the engineer approves this approach, the aggregate will need to be placed after the shaft is excavated and cleaned out. The aggregate will take space within the grout cell and the required minimum net grout volume will need to be adjusted.

Base grouting procedures (detailed below) can commence upon adequate drilled shaft concrete strength development, as directed by the engineer.

**C.2 Procedure for Base Grouting**

The base grouting specialty subcontractor shall perform the base grouting process in general accordance with the following steps.

- Access to the top of the shaft must be made available for surveying, access to grouting tubes and other required instrumentation.

- Preparation for grouting as specified.

- The upward movement of the drilled shaft must be monitored at three points around the shaft diameter at 120 degrees (plan view), with two redundant methods (surveyor level and dial gauges). Survey and record the shaft top elevation to a benchmark. Install three dial gauges mounted on reference beams with supports located at least 3 shaft diameters (clear distance) away from the shaft.

- Using the grout pump, fill pump reservoir with water and flush pump lines and the access lines to the shaft simultaneously until residual drilling fluid is expelled from all shaft access lines and clear water is returned. Each access line shall be fitted with a sacrificial in-line valve capable of sustaining the design grout pressure.

- Connect grout tubes to grout pump and pump grout continuously until one of the following production base grouting criteria is met. The minimum net volume must be pumped to the base before the maximum grouting pressure is achieved. This shall assure that an artificial pressure is not induced by access line blockage.

The base grouting shall be terminated once one of the following criteria is met:

1. All of the following vertical movement, maximum grouting pressure, and the minimum net grout volume are achieved. If the vertical movement, maximum grouting pressure and the minimum net grout volume are not all achieved, then a subsequent stage of grouting must be performed.

| Maximum Base Grouting Pressure (psi) | See the Plans |
|---|---|
| Minimum Net Grout Volume ($ft^3$) | Equals the volume of the grout cell as the minimum net grout volume. If poorly graded aggregate with no fines is used in the grout cell, the minimum grout volume shall be reduced by the volume of the aggregate. |
| Minimum Upward Movement (inch) | 0.125 |

2. Maximum shaft upward movement of 0.40 inches is achieved regardless of the grouting pressure.

3. Grouting pressure reaches the maximum rating of the pressure grouting equipment and lines.

Grout pressure and shaft top vertical displacement by survey and dial gauges shall be monitored continuously throughout the grout process by the base grouting subcontractor. Grout volume shall be measured manually every minute. The contractor shall stop the grout process immediately when the base grouting reaches the production base grouting criteria as specified above. Upon termination, line pressure shall be safely vented and the valves removed or left open so as to not retain pressure within the grout cell during curing.

The grout pressure and the rate of pressure increase with respect to grout take must be monitored and recorded. For a sleeve port base grouting system, reduction in the ratio of pressure increase to the grout volume indicates possible hydro-fracturing, which is not desired. Therefore, maximum grouting pressure shall be achieved without pumping excessive amounts of grout.

Upon completion and throughout the base grouting process the shaft top elevation shall be surveyed by the base grouting specialty subcontractor.

If either the net grout volume or the upward movement of 0.125 inches is not achieved and as directed by the engineer, the grout lines shall be flushed and the contractor shall repeat the base grouting process at least 4 and no more than 6 hours after the first base grouting has been completed. As directed by the engineer, up to 2 cycles of base grouting including the initial base grouting cycle, shall be performed if the specified termination criterion is not achieved.

**C.3 Survey Level**

As a check on the shaft movement, the elevations of three points at the top of the shaft shall be determined by survey level before, during, and after the pressure grouting. This shall be performed by the base grouting specialty subcontractor. Alternatively, the surveyor may also use dial gages attached to a fixed reference near the top of the shaft. The initial elevation shall be determined before the application of the grout. A final reading shall be made at the time of the grout pressure reach the design pressure or as directed by the engineer.

**C.4 Grout Feasibility Test**

Grout feasibility test is not required.

**C.5 Acceptance Criteria:**

The base grouting is accepted when one of the termination criteria (specified in Section C2) is met or two cycles of base grouting is performed per shaft location.

**C.6 Required Reports:**
The report shall include field inspection forms, a description of the grout system, grout mix, the acceptance criteria met, plots of grout pressure and grout volume versus time, maximum upward displacement of the shaft, maximum grouting pressure, and summary conclusions. Provide six hard copies and one electronic copy of the report to the engineer.

**D Measurement**
The department will measure Drilled Foundation Shaft Base Grouting including up to two cycles of base grouting as each unit per shaft location, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.4150 | Drilled Foundation Shaft Base Grouting | Each |

Payment is full compensation for furnishing all materials, providing all tools, equipment, cycles of base grouting, labor and incidentals.

## 265. Thermal Integrity Profiler (TIP) Testing, Drilled Foundation Shaft 59.06-Inch, Item SPV.0060.4155; Drilled Foundation Shaft 98.43-Inch, Item SPV.0060.4160; Drilled Foundation Shaft 118.11-Inch, Item SPV.0060.4162; Wall Secant Pile 47.24-Inch, Item SPV.0060.4165.

**A Description**
**A.1 General**
This special provision describes providing specialized equipment and trained testing personnel and to perform Thermal Integrity Profiler (TIP) testing of drilled shafts in accordance to the plans and as hereinafter provided.

Thermal Integrity Profiler (TIP) testing records temperature of curing concrete (hydration energy) along the length of a drilled shaft to assess the quality of drilled foundation shafts or drilled secant pile wall shafts hereinafter referred to as “drilled shafts”. Data will be acquired using Thermal Wires™, hereinafter referred to as “thermal wires”, tied to the reinforcement bar cage and installed prior to concreting. The expected temperature at any location is dependent on the shaft diameter, mix design, time of measurement and distance to the center of the shaft. TIP measurements are used to estimate the shape of the shaft along the length of the shaft. These estimates are compared with concreting logs to assess the overall quality of the shaft.

TIP testing can be performed using embedded thermal wires or using probes lowered into embedded tubes. This special provision specifies the thermal wire method.

**A.1 TIP Testing Personnel Requirements**
The contractor shall provide a TIP testing expert to direct and perform all aspects of the TIP testing and provide interpretation of results. The TIP testing expert must be a

professional engineer licensed in the State of Wisconsin. The TIP testing expert shall be employed by an independent testing agency with documented and approved experience in TIP testing. Submit the qualifications of the proposed TIP testing expert to the engineer for approval prior to beginning drilled shaft installation.

**B Materials**

Provide a TIP testing data acquisition system consisting of multiple thermal wires embedded in the drilled shaft concrete to be TIP tested and connected to a computer based data recorder. The data collection system shall be capable of automatically collecting temperature verses time after casting data along the length of the drilled shaft at intervals of 15 minutes. The thermal wires and TIP testing data acquisition system shall be as manufactured by:

Pile Dynamics Incorporated
30725 Aurora Road
Cleveland Ohio 44139
Phone: (216) 831-6131
Web Page: www.pile.com

**C Construction**

**C.1 TIP Testing Coordination**

Schedule and coordinate drilled shaft construction with the TIP testing expert. Alter normal construction procedures as necessary to facilitate the TIP testing procedure. This includes providing suitable and safe access to the site and specific locations of drilled shafts to be tested and providing assistance to the TIP expert to facilitate the TIP testing.

**C.2 Thermal Wire Installation**

(1) Install thermal wires as shown in the plans and in accordance to the procedures and recommendations of the TIP expert. For the initial installation of thermal wires on the contract, the TIP expert shall be on site to provide guidance and training on the installation and hookup of the thermal wires.

(2) For the drilled shafts indicated on the plans to be TIP tested, the contractor shall install the number of thermal wires that is equal to or greater than the shaft diameter. For example a drilled shaft diameter of 4.5 feet shall have minimum 5 thermal wires evenly spaced around the perimeter of the reinforcement cage and as shown in the plans. The minimum number of thermal wires for any shaft diameter shall be 4.

(3) Align and attach the thermal wires to the main longitudinal reinforcement of the drilled shaft spaced approximately equally around the perimeter of the drilled shaft reinforcement cage. Stretch the thermal wires to minimize the wire slack and tie vertically at a maximum of every 3 feet to the main longitudinal reinforcement. Locate the thermal wire on the main longitudinal reinforcement bar such that it is $90^{o}$ to the line connecting the reinforcement to the center of the shaft.

(4) Provide and install one additional thermal wire supported and attached to a longitudinal reinforcement bar positioned parallel to and offset from the perimeter reinforcement at a fixed and known radial distance closer to the center of the shaft; typically at least 2 inches or as shown in the plans. Record the offset distance to the closet perimeter thermal wire before placing the reinforcement bar cage into the drilled shaft.

**C.2. TIP Testing**

The contractor shall connect the thermal wires to a Thermal Access Port (TAP) prior to or immediately following drilled shaft concrete placement. The exact timing and duration of data measurement will be determined by the contractor's TIP testing expert. Data shall be collected at time intervals of 15 minutes for the duration of time sufficient to reach and record the peak heat of hydration temperature, but for a minimum of 24 hours or longer minimum duration as recommended by the TIP expert. After completion of the data collection period, the TAP shall be connected to the main TIP data acquisition unit and the data files shall be downloaded for inspection and evaluation of temperatures versus time for depth along the length of the drilled shaft.

Potential local defects indicated by locally low temperatures relative to the average temperature at that depth, or average temperatures significantly lower than the average temperatures at other depths, shall be immediately reported to the engineer.

**C.3. TIP Testing Reports**

Within three working days of completion of TIP testing and receipt of shaft construction record, submit a TIP Testing Report for each drilled shaft tested to the engineer summarizing TIP testing results. At a minimum the TIP testing reports must include:

(1) Graphical displays of temperature measurements in each thermal wire versus depth at peak temperature.

(2) Indication of unusual temperatures, particularly significantly cooler local deviations of the average at any depth from the overall average over the entire length, in either probe or thermal wire measurements

(3) The overall average temperature at peak temperature. This temperature is proportional to the average radius computed from the actual total concrete volume installed. Radius at any point can then be determined from the temperature at that point compared to the overall average temperature.

(4) A depiction of the shaft radius vs. depth including the concrete cover at peak temperature. Variations in temperature between wires (at each depth) which in turn correspond to variations in cage alignment should be noted. The cage alignment or offset from center should be noted.

(5) Shaft specific construction information (e.g. elevations of the top of shaft, bottom of casing, bottom of shaft, etc.), should be noted on all pertinent graphical displays.

(6) Conclusions or recommendations concerning the acceptability of the drilled shaft based on the interpretation of the TIP testing results obtained.

**D Measurement**

The department will measure Thermal Integrity Profiler (TIP) Testing by the unit for each drilled shaft tested, acceptably completed, regardless of the number of thermal wire strings in the shaft.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.4155 | Thermal Integrity Profiler (TIP) Testing, Drilled Foundation Shaft 59.06-Inch | Each |
| SPV.0060.4160 | Thermal Integrity Profiler (TIP) Testing, Drilled Foundation Shaft 98.43-Inch | Each |
| SPV.0060.4162 | Thermal Integrity Profiler (TIP) Testing, Drilled Foundation Shaft 118.11-Inch | Each |
| SPV.0060.4165 | Thermal Integrity Profiler (TIP) Testing, Wall Secant Pile 47.24-Inch | Each |

Payment will be full compensation for furnishing and installing the thermal wires, data collection unit, evaluation and interpretation of results, providing test reports.

## 266. Polymer Concrete Pull Boxes 13x24x18-Inch, Item SPV.0060.4170.

**A Description**

This special provision describes furnishing and installing Polymer Concrete Pull Boxes for traffic signals or street lighting as shown on the plans.

**B Materials**

Pull boxes shall be constructed of polymer concrete consisting of sand and aggregate bound together with a polymer resin. Internal reinforcement may be provided by means of steel, fiberglass, or a combination of the two. The use of chopped fiberglass strands applied with a "chopper gun" or the use of high density polyethylene or high density polystyrene is prohibited. To assure consistent production from part to part, only matched metal tooling is to be used to manufacture the product. The material is to have the following minimum allowable properties to be accepted for use:

1. Unreinforced polymer concrete compressive strength: 10,000 psi tested in accordance to ASTM D-790.

2. Fiberglass reinforced polymer flexural strength: 18,000 psi tested in accordance to ASTM D-790.

3. Fiberglass reinforced polymer concrete flexural strength: 2,300 psi tested in accordance to ASTM D-790.

4. Fiberglass reinforced polymer tensile strength: 12,000 psi tested in accordance to ASTM D-638.

5. Accelerated service: 90% weight and strength retention when tested in accordance to ASTM D-756.

6. Water absorption: less than 1% weight increase when tested in accordance to ASTM D-570, sections 5, 6.1, and 6.5.

7. Cover impact resistance: 72 foot-pounds when tested using a C-tup in accordance to ASTM D-2444.

8. Cover skid resistance: 0.50 coefficient of friction when tested in accordance to ASTM C-1028.

9. Flammability test: UL94-0 rating.

10. Ultraviolet exposure: less than 1% loss in strength or weight when tested for 2,000 hours in accordance to ASTM G-154 using an U.V.A. 340 bulb.

11. Chemical resistance: less than 2% weight change when tested in accordance to ASTM D-543, section 7, Procedure 1 using the following chemicals:

    a) Sodium chloride, 5%
    b) Sodium carbonate, 0.1N
    c) Hydrochloric acid, 0.2N
    d) Acetic acid, 5%
    e) Sulfuric acid, 0.1N
    f) Sodium sulfate, 0.1N
    g) Sodium hydroxide, 0.1N
    h) Kerosene per ASTM D-543
    i) Transformer oil per ASTM D-543

12. Appearance: The vaults and covers shall be gray in color and shall be sized as shown in the plans. Provisions for inserting conduit into any side or the bottom of the vault shall be included. Conduit access areas of the box shall be capable of being readily cut in the field using a carbide hole saw with a battery-operated drill. Covers shall be heavy duty rated and shall be provided with two stainless steel tamper-resistant bolts. The box shall be equipped with a self-centering nut with a vertical hole through for debris removal. Each cover shall have the words “STREET LIGHTING” cast into its surface along the longest dimension. The words shall be permanently recessed into the surface.

13. Testing**:** The installed vault shall be rated for a minimum wheel load of 8,000 lbs and used in occasional, non-deliberate vehicular traffic or pedestrian traffic applications only. Qualification of an acceptable product is determined by applying the following test procedures.

13.1 Horizontal Sidewall Cyclic Test: Apply 800 psf uniformly to the entire area of the largest sidewall. Use an air bag to obtain uniform distribution. Support the opposite sidewall to prevent local failure. Deflection shall not exceed 1/4-inch per foot of wall length. Cycle the load ten times. Final test: Apply 1200 psf for one cycle to enclosure as described in Cyclic Test.

13.2 Vertical Box Wall Cyclic Test: Apply 8,000 lbs to a 10 inch by 10 inch by 1-inch thick steel load plate centered on the longest box wall so as to load a 5 inch by 10 inch area. A 1/2-inch thick rubber pad is to be placed between cover and load plate to ensure load distribution. Cycle load ten times. Final test: Apply 17,000 lbs for one cycle to enclosure as described in Cyclic Test. Maximum cover deflection = 1/2-inch at a load of 8,000 lbs maximum deflection.

13.3 Vertical Cover Cyclic Test: Apply 8,000 lbs to the center of the cover with a 10 inch by 10 inch by 1-inch thick steel load plate. A 1/2-inch thick rubber pad is to be placed between cover and load plate to ensure load distribution. Cycle load ten times. Final test: Apply 17,000 lbs for one cycle to enclosure as described in Cyclic Test. Maximum deflection = 1/2-inch at a load of 8,000 lbs measured at the location of maximum deflection.

All cyclic testing should be conducted with the load applied over a one minute period, held for one minute, released over a one minute period, then allowed to relax for one minute before proceeding to the next cycle. Failure is defined for all load tests as the specimen's inability to withstand an increase in load or the load at which the maximum allowable deflection is exceeded.

**C Construction**

Polymer Concrete Pull Box shall be installed in accordance to plan details.

**D Measurement**

The department will measure Polymer Concrete Pull Boxes 13x24x18-Inch by each individual polymer concrete pull box, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.4170 | Concrete Polymer Pull Boxes13x24x18-Inch | Each |

Payment is full compensation for furnishing and installing all materials; for drilling all holes for conduit connections; and for excavation, backfilling and disposal of surplus material.

## 267. Concrete Base Sleeves, Item SPV.0060.4175.

**A Description**
Furnish and install a corrugated steel pipe sleeve in the reinforced earth zone of mechanically stabilized earth (MSE) retaining walls and other locations shown in the plans. Perform work in accordance to pertinent portions of standard specs 520 and 521, the plans, and as herein after provided

**B Materials**
The concrete base pipe sleeve shall meet the requirements of standard spec 521.2 for corrugated steel pipe.

**C Construction**
Set the sleeve within 1 inch of the required position indicated on the plans prior to placing the reinforced earth. Brace the sleeve to maintain position within 2 inches of required position as backfilling proceeds. Place soil reinforcing mats around the sleeve.

For future reference, permanently indicate the depth measured from the top of the sleeve down to the level of the nearest MSE wall soil reinforcement on the inside surface of the sleeve, near the top of the sleeve.

Correct any damage to the sleeve that would hinder the installation of the concrete base prior to placing any additional reinforced earth.

**D Measurement**
The department will measure Concrete Base Sleeves by each individual unit, acceptably installed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.4175 | Concrete Base Sleeves | Each |

Payment is full compensation for furnishing and installing the concrete base sleeve.

## 268. Bar Couplers No. 14, Item SPV.0060.4180; No. 18, Item SPV.0060.4181.

**A Description**
This work consists of furnishing and installing No. 14 and No. 18 bar couplers for mechanically splicing high strength bar steel reinforcement in accordance to standard spec 505, as shown on the plans, and as hereinafter provided.

**B (Vacant)**

**C Construction**
Conform to standard spec 505.3.3.4.

**D Measurement**
The department will measure Bar Couplers No. 14 and Bar Couplers No.18 by the unit for each coupler provided and acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.4180 | Bar Couplers No.14 | Each |
| SPV.0060.4181 | Bar Couplers No.18 | Each |

Payment is full compensation in accordance to standard spec 505.5(4).

## 269. Temporary Access Gates, Item SPV.0060.4185.

**A Description**
This special provision describes furnishing and erecting an access gate and any necessary approach work per plan detail at the location shown on the plans and as directed by the engineer.

**B (Vacant)**

**C Construction**
Construct these gates at least 12 feet outside of any railroad track~~s~~. Gates must be constructed so they do not swing toward the railroad tracks.

Equip gate with a chain or cable and a key lock. Keep gates locked in the closed position when not in use. Remove gate upon completion of the project.

Provide any approach work necessary to move equipment up to the UPRR tracks, in-between the UPRR tracks and through the gate. The track crossing will be installed by the UPRR. Provide any drainage measures necessary to maintain the existing drainage when the approach work, crossings and gates are in place. Remove these gates, any approach work and any drainage measures, and restore the existing drainage pattern.

**D Measurement**
The department will measure Temporary Access Gates as each individual access gate, acceptably completed.

**E Payment**
The department will pay for the measured quantity at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.4185 | Temporary Access Gates | Each |

Payment is full compensation for furnishing all materials; for erecting posts and gates; for constructing any necessary approach work; for constructing any drainage measures; for removing all items discussed in this special provision.

## 270. Permanent Connection to Existing 24-Inch Water Main, Item SPV.0060.5000.

### A Description

This special provision describes the connection of proposed water main to existing water main as shown on the plans. Perform this work in accordance to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and amendments (SSSW), and as hereinafter provided and these special provisions.

### B Materials

#### B.1 General

Furnish all fittings (restrained joint and standard) required for installation on this project. Unless specified otherwise, water main shall be Push-on Rubber Gasket Joint Ductile Iron. Water main specified as restrained joint, shall be Restrained Joint Ductile Iron Thickness Class 55 pipe, conforming to AWWA C-151 with fittings conforming to AWWA C110.

Contractor to provide all necessary information for furnished steel and iron items to comply with Wisconsin Department of Transportation DT2249, "Utility's Certificate of Compliance for Steel and Iron Items".

### C Construction

Construct each cut in connection to existing 24-inch cast iron or concrete water main including spool pieces, fittings, material adaptor fittings, temporary plugs, air vents, excavation shoring, backfill, and restoration.

### D Measurement

The department will measure Permanent Connection to Existing 24-Inch Water Main as each connection, acceptably completed.

### E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.5000 | Permanent Connection to Existing 24-Inch Water Main | Each |

Payment is full compensation for providing all labor, equipment, materials, fittings and accessories required; for furnishing all excavating; for sheeting and shoring; for forming foundation; for laying pipe; for removing valves; for installing all valves, air vents, and fittings; for concrete base, buttresses, and anchors; for bulkheading and abandoning

existing water mains; for sealing joints and making connections to new or existing facilities; for providing granular backfill material, including bedding material; for backfilling; for removing sheeting and shoring; for cleaning out the site of the work and incidentals necessary to complete the work.

## 271. Adjusting Water Valves Wauwatosa, Item SPV.0060.5001.

**A Description**

This special provision describes the adjustment of existing water service boxes and water gate valve boxes to match the proposed finish grade as shown in the plans and as hereinafter provided.

**B (Vacant)**

**C Construction**

**C.1 Water Valve Boxes**

Adjust water service boxes and water gate valve boxes vertically as required by contractor operations. Set the finish service of valve box in a plumb, vertical position flush with the pavement or terrace. Protect the top section of the box. Provide a new top section if broken.

Correct the condition of the valve if Wauwatosa Water Utility determines the valve is inoperable even after pavement is installed at the contractor's expense. Make corrections within five days of notification by the city.

**D Measurement**

The department will measure Adjusting Water Valves Wauwatosa as each individual unit, acceptably completed, regardless of the number of adjustments made to the valve box.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.5001 | Adjusting Water Valves Wauwatosa | Each |

Payment is full compensation for providing all required materials; for removing, reinstalling and adjusting the valves. The contractor shall replace valves rendered unusable by the contractor's operations or rendered inoperable by Wauwatosa Water Utility at no expense to the department.

## 272. Adjusting Water Valves Milwaukee, Item SPV.0060.5002.

### A Description

This special provision describes adjusting, protecting, and maintaining accessibility, for the duration of the paving project, to all city water service boxes and water gate valve boxes located within the project limits.

### B Materials

All material for the adjustment of these facilities must meet City of Milwaukee specifications and will be provided by the City of Milwaukee by contacting Jesse Hernandez, Milwaukee Water Works, at (414) 708-2670 (or Dave Goldapp, Milwaukee Water Works at (414) 286-6301). If there is contractor damage, the materials must still be provided by the City of Milwaukee, however, in this case, the contractor will be charged for all materials. Materials furnished by the City of Milwaukee and not used on the project shall be delivered back to DPW Field Headquarters- Infrastructure, Operations, Water Works at 3850 N. 35th St. Materials being returned must be accompanied with a "surplus material" form completed by the Public Works Inspector assigned to the project.

### C Construction

Adjust all water service boxes and water gate valve boxes within the project limits to proposed elevations by using materials meeting city specifications.

The city will locate, mark, inspect and repair all water service boxes and water gate valve boxes within the limits of the project prior to commencement of work on the project.

Ensure that all water service boxes and water gate valve boxes are adequately located and identified by blue paint, and that at all times, all water appurtenances remain accessible for operation by city forces. Avoid damage and ensure accessibility when working adjacent to water facilities.

Upon completion of the contract, the city will inspect all water facilities to ensure the water valves are clean, properly aligned, and accessible. Make identified repairs and adjustments, and if any repairs or adjustments are made by the city, the cost will be charged to the contractor.

### D Measurement

The department will measure Adjusting Water Valves Milwaukee as each individual unit, acceptably completed.

### E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.5002 | Adjusting Water Valves Milwaukee | Each |

Payment is full compensation for furnishing all excavation, backfilling, disposal of surplus materials, water box, and restoration of the work site.

## 273. Adjusting Water Valves West Allis, Item SPV.0060.5003.

**A Description**

This special provision describes the adjustment of existing water service boxes and water gate valve boxes to match the proposed finish grade as shown in the plans and as hereinafter provided.

**B (Vacant)**

**C Construction**

**C.1 Water Valve Boxes**

Adjust water service boxes and water gate valve boxes vertically as required by contractor operations. Set the finish service of valve box in a plumb, vertical position flush with the pavement or terrace. Protect the top section of the box. Provide a new top section if broken. New top section can be obtained from the West Allis City Yard, 6300 West McGeoch Avenue.

Correct the condition of the valve if West Allis Water Department determines the valve is inoperable even after pavement is installed at the contractor's expense. Make corrections within five days of notification by the city.

**D Measurement**

The department will measure Adjusting Water Valves West Allis as each individual unit, acceptably completed, regardless of the number of adjustments made to the valve box.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.5003 | Adjusting Water Valves West Allis | Each |

Payment is full compensation for providing all required materials; for removing, reinstalling and adjusting the valves. The contractor shall replace valves rendered unusable by the contractor's operations or rendered inoperable by West Allis Water Department at no expense to the department.

## 274. Cut and Cap Water Main, Item SPV.0060.5004.

**A Description**

This special provision describes cutting and capping existing water main as shown on the plans, in accordance to the Standard Specifications for Sewer and Water Construction in

Wisconsin, latest Edition and addendums, conforming to West Allis Sewer and Water Specifications, Addendum February 2010 and as hereinafter provided.

**B Materials**
Provide backfill material meeting City of West Allis standards and obtain approval from the City of West Allis.

**C (Vacant)**

**D Measurement**
The department will measure Cut and Cap Water Main as each individual cut and cap, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.5004 | Cut and Cap Water Main | Each |

Payment is full compensation for furnishing all excavation; and for providing backfill material.

## 275. Air Release Valve, Item SPV.0060.5005.

**A Description**
This special provision describes air release valve installation as shown on the plans, in accordance to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition and addendums, conforming to West Allis Sewer and Water Specifications, Addendum February 2010, and as hereinafter provided.

**B Materials**
The City of West Allis Water Utility furnished materials include the following:

- Stop and drain valve
- Brass cap and fitting
- Two service boxes

The City of West Allis Water Utility will supply and install the 1-inch tap.

Contractor furnished materials include the following:

- 1-Inch diameter copper water service

**C Construction**
Notify City of West Allis Water Utility, Joe Burch at (414) 302-8379 or jburtch@westalliswi.gov 48 hours in advance to schedule 1-inch water tap installation.

**D Measurement**
The department will measure Air Release Valve as each individual air release valve, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.5005 | Air Release Valve | Each |

Payment is full compensation for furnishing all excavation and for providing backfill material; for contractor furnished materials, and for installation.

## 276. Abandoning Air Release Manhole, Item SPV.0060.5006.

**A Description**
Abandon existing air release manhole and valve as shown on the plans, in accordance to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition and addendums, conforming to West Allis Sewer and Water Specifications, Addendum February 2010, and as hereinafter provided.

**B (Vacant)**

**C (Vacant)**

**D Measurement**
The department will measure Abandoning Air Release Manhole as each individual unit of work, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.5006 | Abandoning Air Release Manhole | Each |

Payment is full compensation for excavating, compaction, backfilling, and bedding material.

## 277. Hydrant Assembly Relocation, Item SPV.0060.5007.

**A Description**
This work includes relocating existing hydrants at locations indicated in the plans, conforming to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and as hereinafter provided.

## B Materials

### B.1 New Hydrant Assembly

Provide new water main hydrants and hydrant lead piping boxes meeting the requirements of the City of Wauwatosa.

Hydrant shall be a AWWA C502 hydrant with all operating nuts and hose connections meeting City of Wauwatosa size requirements.

### B.2 Fittings

Fittings shall conform to AWWA C110, centrifugally cast in metal or sand-lined molds.

Use of compact fittings conforming to AWWA C153 is acceptable.

In no case shall fitting grade rating less than adjoining pipe.

Fittings shall be from same manufacturer as pipe.

Nuts and bolts for joints and fittings shall be corrosion resistant steel, NSS Technologies, Inc. Cor-Blue or approved equal.

### B.3 Polyethylene Sheeting for Pipe Corrosion Protection

Furnish polyethylene sheeting conforming to ASTM D4976, Type I, Class B, color black, Grade E-1, 1200 psi tensile strength, minimum thickness of 8 mil. Tube diameter or sheet width shall conform to AWWA C105.

Furnish tape for polyethylene sheeting that is 2-inch wide, black tape with rubber adhesive and minimum 9 mil polyethylene backing. Tape shall be 3M™ Preservation Sealing Tape 481 or an approved equal.

## C Construction

### C.1 General

In accordance to Wisconsin Statute 182.0175, "Damage to Transmission Facilities," Excavator, as defined in 182.0175(1)(bm), shall be solely responsible to provide advance notice to “Diggers Hotline, Inc.” ,(800) 242-8511 not less than three working days prior to commencement of any Excavation, as defined in the statute, required to perform work contained in this project, and further, Excavator shall comply with all other requirements of this Statute relative to Excavation.

### C.2 Installation of Hydrant Assembly

Furnish all fittings (restrained joint), hydrant, and hydrant lead valves.

Place crushed clear stone below base of re-located hydrant to 6 inches above drain holes in hydrant stem.

Solidly buttress new hydrant against trench wall.

Join pipe and fittings by means of a rubber gasket push-on joints conforming to AWWA C111.

**D Measurement**
The department will measure Hydrant Assembly Relocation by each hydrant assembly provided and installed, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.5007 | Hydrant Assembly Relocation | Each |

Payment is full compensation for furnishing and installing all materials; excavating, backfilling, and compacting.

## 278. Relocate Hydrant, Item SPV. 0060.5008.

**A Description**
This special provision describes the relocation of a hydrant from an existing location to a new location designated in the plan.

**B Materials**
Furnish 6-inch diameter D.I.W.M. CL 53, polyethylene wrap, fittings, bedding material and backfill to complete the installation as specified in the plans. Perform work in accordance with the requirements of the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition in conjunction with the 2010 City of West Allis Addendum.

Utilize the existing hydrant for the Relocate Hydrant.

**C Construction**
Use methods that conform to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition in conjunction with the 2010 City of West Allis Addendum and supplemented as follows:

Remove the existing hydrant and install 6-inch diameter D.I.W.M. hydrant lead and hydrant as specified in the plan.

**D Measurement**
The department will measure Relocate Hydrant as each individual unit acceptable completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.5008 | Relocate Hydrant | Each |

Payment is full compensation for furnishing and installing all materials; pavement sawing; pavement removal; excavation and backfill; and for testing.

## 279. MMSD Sanitary Manhole Precast, Item SPV.0060.5101.

**A Description**

This special provision describes constructing a standard 60-Inch diameter MMSD sanitary manhole made of precast concrete with necessary reinforcement, frames and self-sealing covers, internal frame/chimney seal, materials, proper backfilling, surface replacement and work necessary to the completion of precast manholes including the connection with all incoming and outgoing sewers, all stubs, steps, removing existing manhole and base, and all necessary bypass pumping.

**B Materials**

**B.1 General**

All materials and work required to install the manhole will conform to the SSSW.

**B.2 Manhole**

Manhole barrels shall be constructed of pre-cast reinforced concrete sections. Precast manholes and cones shall conform to ASTM Specifications, C478, latest revision. Provide sanitary sewer pipe to pre-cast manhole wall connection with flexible, watertight boot or cast- in seal in conformance to section 3.5.7(c) of the SSSW. Boots shall have stainless steel clamps and stainless steel hardware.

**B.3 Frame and Cover**

New frames and covers shall be furnished and installed by the contractor. Frames and covers shall be obtained from Veolia Water. Contact Mike Wojtanowski, with Veolia Water at 414-747-3841 to arrange pick up.

Salvage and re-use existing MMSD manhole frame and cover where noted in the plan documents.

**B.4 Internal Manhole Chimney Seal**

Internal rubber sleeves used in connection with sealing leakage between the manhole frame and the extension or cone shall be extruded or molded from a high-grade rubber compound conforming to the applicable requirements of ASTM C443. The sleeves shall be double pleated and capable of a vertical expansion, when installed, of not less than 2 inches.

Expandable stainless steel bands for compressing the sleeve against the manhole shall be 16 gage by a minimum of 1-3/4 inches wide and shall be fabricated of stainless steel conforming to ASTM A240, Type 304. Screws, bolts and nuts used on the band shall be stainless steel conforming to ASTM A276, Type 304.

Materials shall meet the performance requirements of section 8.42.4 of the SSSW.

**B.5 Concrete Adjusting Rings**
Concrete grade rings shall not be less than 2 inches nor more than 6 inches high and shall contain a minimum of one No. 2 reinforcing rod centered within the ring in conformance with section 8.39.11 of the SSSW and ASTM C-478. Concrete shall be Class B in conformance with section 8.35.3 of the SSSW. A minimum of two grade rings shall be installed with a maximum allowance of 18-inch for adjustment. Multiple grade rings will not be allowed where one will suffice.

**B.6 Coal Tar Epoxy**
Coal-tar to be used for coating structures shall conform to chapter 8.49.0 of the SSSW. The requirements and application of the coating for the manhole structures shall conform to chapter 8.7.0 of the SSSW. Coal tar epoxy coating shall be applied to the manhole prior to the structure being delivered to the work site.

**B.7 Joints**
Joints for precast manholes shall meet the requirements of ASTM C-443, latest revision, except that sealant shall be butyl rubber gasket or butyl rubber rope. Flexible butyl rubber gaskets or rope shall comply with the physical requirements for Type "B" gaskets in AASHTO Designation M-198, or Federal Specification SSS-00210-A, sealing compound, preformed plastic for expansion joints and pipe joints.

**B.8 External Manhole Joint Seal**
External manhole joint seal shall conform to ASTM C-877 Type II, and installed per manufacturer's recommendations.

**B.9 Steps**
All manholes shall be provided with steps equally spaced vertically on center installed by the manufacturer as shown on the standard detail sheet. Steps shall be embedded into the riser or conical top section of the wall a minimum of 3 inches. Manhole steps shall be Type PS2-PFS as manufactured by M.A. Industries, Peachtree City, GA 30269; or equal with ½-inch diameter Grade 60 steel reinforcement coated with copolymer polypropylene plastic. Install steps 15-inch on center. Provide certified test data that the steps are capable of withstanding an 800-pound vertical load without sustaining more than a 3/8-inch permanent set when tested in accordance to Section 10 of ASTM C 497.

**B.10 Granular Backfill**
Granular backfill shall meet the requirements of section 8.43.4 of the SSSW.

**C Construction**

**C.1 General**

Notify Larry Anderson (MMSD), 414-225-2241, at least 3 days in advance of the commencement of construction.

Construct manholes as shown in the plans and in accordance to section 3.5.4 and File No. 12 of the SSSW. Construct manhole bases in conformance to section 3.5.5 of the SSSW.

Provide by-pass pumping of wastewater around construction zone during working hours. During non-work hours, provide temporary connection of replacement sanitary sewer to existing sanitary sewer to provide uninterrupted sanitary sewer service. A "Notice of Bypass Intent" form must be submitted to MMSD for review and approval prior to any by-pass pumping activities.

Reconnect existing sewer main and laterals which are to enter new manholes in conformance to section 3.5.7 of the SSSW.

Fill the excavation with granular backfill in conformance to section 2.6.2 of the SSSW unless specified otherwise on plans, to existing surface or to appropriate depth for pavement restoration. Consolidate backfill in conformance to section 2.6.14(b) of the SSSW.

The sewer line shall be kept free of debris at all times. Take care to prevent any loose material from entering outlet sewer lines.

**C.2 Coal Tar Epoxy**

Coal-tar epoxy coating shall only be applied to the manholes as specified in the plans. The requirements and application of the coating for the manhole structures shall conform to chapter 8.7.0 of the SSSW. Coal tar epoxy coating shall be applied to the manhole prior to the structure being delivered to the work site.

**C.3 Vacuum Testing**

Perform vacuum testing of sanitary manholes in conformance to section 3.7.6 of the SSSW. Any section of the completed sewer failing to pass the test shall be repaired and retested.

**D Measurement**

The department will measure MMSD Sanitary Manhole Precast as a unit for each individual manhole, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.5101 | MMSD Sanitary Manhole Precast | Each |

Payment is full compensation for furnishing and installing all materials including pre-cast manhole base, riser, bench, cone section, frames and covers, grates or lids, steps, chimney adjustment rings, gaskets, joint seals, bedding material, granular backfill material; for furnishing all excavation, dewatering, bypass pumping, sheeting and shoring, and forming foundation; for making sanitary sewer connections; for making lateral connections: for backfilling including mechanical compaction and compaction testing; for removing sheeting and shoring; for furnishing and installing all testing equipment and materials; for furnishing all testing including vacuum testing; for disposal of all surplus or waste material; and for clean-up. The cutting and removal of existing sanitary sewer pipe and manholes from within the trench of replacement sanitary sewer will not be paid for separately, but shall be considered incidental to the item.

## 280. MMSD Sanitary Manhole Reconstruct, Item SPV.0060.5102.

### A Description

This special provision describes the reconstruction of a MMSD sanitary manhole to the elevation as shown in the plans.

### B Materials

#### B.1 Manhole

Manhole cone sections shall be constructed of precast reinforced concrete sections. Precast manholes and cones shall conform to ASTM Specifications, C478, latest revision.

Steel reinforcement shall conform to C-478 requirements of ASTM specifications.

#### B.2 Frame and Cover

Salvage and re-use existing MMSD manhole frame and cover.

#### B.3 Internal Manhole Chimney Seal

Provide internal manhole chimney seals unless specified otherwise in the plans and construction details. Where MMSD is to provide and install the internal manhole chimney seal, contact Bob Rebitski, (414) 225-2214.

Internal rubber sleeves used in connection with sealing leakage between the manhole frame and the extension or cone shall be extruded or molded from a high-grade rubber compound conforming to the applicable requirements of ASTM C443. The sleeves shall be double pleated and capable of a vertical expansion, when installed, of not less than 2 inches.

Expandable stainless steel bands for compressing the sleeve against the manhole shall be 16 gage by a minimum of 1-3/4 inches wide and shall be fabricated of stainless steel conforming to ASTM A240, Type 304. Screws, bolts and nuts used on the band shall be stainless steel conforming to ASTM A276, Type 304.

Materials shall meet the performance requirements of section 8.42.4 of the SSSW.

**B.4 Concrete Adjusting Rings**
Concrete grade rings shall not be less than 2 inches nor more than 6 inches high and shall contain a minimum of one No. 2 reinforcing rod centered within the ring in conformance with section 8.39.11 of the SSSW and ASTM C-478. Concrete shall be Class B in conformance with section 8.35.3 of the SSSW. A minimum of two grade rings shall be installed with a maximum allowance of 18-inch for adjustment. Multiple grade rings will not be allowed where one will suffice.

**B.5 Joints**
Joints for precast manholes shall meet the requirements of ASTM C-443, latest revision, except that sealant shall be butyl rubber gasket or butyl rubber rope. Flexible butyl rubber gaskets or rope shall comply with the physical requirements for Type "B" gaskets in AASHTO Designation M-198, or Federal Specification SSS-00210-A, sealing compound, preformed plastic for expansion joints and pipe joints.

Finish joints with a non-shrink grout finish meeting the requirements of ASTM C928.

**B.6 External Manhole Joint Seal**
External manhole joint seal shall conform to ASTM C-877 Type II, and installed per manufacturer's recommendations.

**B.7 Steps**
All manholes shall be provided with steps equally spaced vertically on center installed by the manufacturer as shown on the standard detail sheet. Steps shall be embedded into the riser or conical top section of the wall a minimum of 3 inches. Manhole steps shall be Type PS2-PFS as manufactured by M.A. Industries, Peachtree City, GA 30269; or equal with ½-inch diameter Grade 60 steel reinforcement coated with copolymer polypropylene plastic. Install steps 15-inch on center. Provide certified test data that the steps are capable of withstanding an 800-pound vertical load without sustaining more than a 3/8-inch permanent set when tested in accordance to Section 10 of ASTM C 497.

**B.8 Bentonite Waterstops**
Bentonite waterstops shall be 1-inch by 3/4 inch size flexible strip of bentonite waterproofing compound with an adhesive surface on one side of the strip, waterstop Type RX.

**B.9 Bonding Agent**
Bonding agent for use on existing concrete surfaces shall be Sikastix 370, Sikadur Hi-Mod; Horn Co. Epoxtite Binder 2385; or equal.

**B.10 Granular Backfill**
Granular backfill shall meet the requirements of section 8.43.4 of the SSSW.

**C Construction**
**C.1 General**
Notify Larry Anderson (MMSD), (414) 225-2241, at least 3 days in advance of the commencement of construction.

Reconstruct manholes as shown in the plans and construction details.

To lower manholes, remove existing 48" vertical height brick chimney. Cut existing cast-in-place concrete manhole wall and remove to required height.

Install precast concrete cone section and adjusting rings as needed to bring manhole to proposed grade. Salvage and reinstall existing frames and covers.

The sewer line shall be kept free of debris at all times. Take care to prevent any loose material from entering outlet sewer lines. The existing inside drop shall be protected from damage, including, but not limited to, from falling debris.

**C.2 Backfill**

Fill the excavation with granular backfill in conformance to section 2.6.2 of the SSSW unless specified otherwise on plans, to existing surface or to appropriate depth for pavement restoration. Consolidate backfill in conformance to section 2.6.14(b) of the SSSW.

Remove all trash from the excavation before placing any backfill. Backfill shall be brought up uniformly around manholes and structures to prevent unbalanced lateral loading.

Do not operate earth-moving equipment within 5 feet of walls of manholes for the purpose of depositing or compacting backfill materials. Compact backfill adjacent to concrete walls with hand-operated tampers or other equipment that will not damage the manhole.

**D Measurement**

The department will measure MMSD Sanitary Manhole Reconstruct as a unit for each individual manhole, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.5102 | MMSD Sanitary Manhole Reconstruct | Each |

Payment is full compensation for furnishing and installing all materials including pre-cast cone section, steps, chimney adjustment rings, gaskets, joint seals, non-shrink grout, concrete, steel reinforcement, waterstops, backfill material; for furnishing all excavation, dewatering, bypass pumping, sheeting and shoring, and masonry work; for cutting and removing existing cast-in-place manhole sections, for backfilling including mechanical compaction and compaction testing; for removing sheeting and shoring; for furnishing all testing; for disposal of all surplus or waste material; and for clean-up.

## 281. MMSD Sanitary Manhole Extension, Item SPV. 0060.5103.

### A Description

This special provision describes constructing a MMSD sanitary manhole extension to the elevation as shown in the plans.

### B Materials

#### B.1 Concrete Collar

Concrete for concrete collar shall be Class A Concrete conforming to the requirements of Chapter 8.35.0 and Table 29 of Chapter 8 of the SSSW.

Steel reinforcement shall conform to C-478 requirements of ASTM specifications.

#### B.2 Manhole

Manhole barrel sections shall be constructed of precast reinforced concrete sections.

Precast manholes and cones shall conform to ASTM Specifications, C478, latest revision.

#### B.3 Frame and Cover

New frames and covers shall be furnished and supplied by Veolia Water. Contact Mike Wojtanowski, with Veolia Water at 414-747-3841.

#### B.4 Internal Manhole Chimney Seal

Internal rubber sleeves used in connection with sealing leakage between the manhole frame and the extension or cone shall be extruded or molded from a high-grade rubber compound conforming to the applicable requirements of ASTM C443. The sleeves shall be double pleated and capable of a vertical expansion, when installed, of not less than 2 inches.

Expandable stainless steel bands for compressing the sleeve against the manhole shall be 16 gage by a minimum of 1-3/4 inches wide and shall be fabricated of stainless steel conforming to ASTM A240, Type 304. Screws, bolts and nuts used on the band shall be stainless steel conforming to ASTM A276, Type 304.

Materials shall meet the performance requirements of section 8.42.4 of the SSSW.

#### B.5 Concrete Adjusting Rings

Concrete grade rings shall not be less than 2 inches nor more than 6 inches high and shall contain a minimum of one No. 2 reinforcing rod centered within the ring in conformance with section 8.39.11 of the SSSW and ASTM C-478. Concrete shall be Class B in conformance with section 8.35.3 of the SSSW. A minimum of two grade rings shall be installed with a maximum allowance of 18-inch for adjustment. Multiple grade rings will not be allowed where one will suffice.

**B.6 Coal Tar Epoxy**
Coal-tar to be used for coating structures shall conform to chapter 8.49.0 of the SSSW. The requirements and application of the coating for the manhole structures shall conform to chapter 8.7.0 of the SSSW. Coal tar epoxy coating shall be applied to the manhole prior to the structure being delivered to the work site.

**B.7 Joints**
Joints for precast manholes shall meet the requirements of ASTM C-443, latest revision, except that sealant shall be butyl rubber gasket or butyl rubber rope. Flexible butyl rubber gaskets or rope shall comply with the physical requirements for Type "B" gaskets in AASHTO Designation M-198, or Federal Specification SSS-00210-A, sealing compound, preformed plastic for expansion joints and pipe joints.

**B.8 External Manhole Joint Seal**
External manhole joint seal shall conform to ASTM C-877 Type II, and installed per manufacturer's recommendations.

**B.9 Steps**
All manholes shall be provided with steps equally spaced vertically on center installed by the manufacturer as shown on the standard detail sheet. Steps shall be embedded into the riser or conical top section of the wall a minimum of 3 inches. Manhole steps shall be Type PS2-PFS as manufactured by M.A. Industries, Peachtree City, GA 30269; or equal with ½-inch diameter Grade 60 steel reinforcement coated with copolymer polypropylene plastic. Install steps 15-inch on center. Provide certified test data that the steps are capable of withstanding an 800-pound vertical load without sustaining more than a 3/8-inch permanent set when tested in accordance to Section 10 of ASTM C 497.

**B.10 Bentonite Waterstops**
Bentonite waterstops shall be 1-inch by 3/4 inch size flexible strip of bentonite waterproofing compound with an adhesive surface on one side of the strip, waterstop Type RX.

**B.11 Bonding Agent**
Bonding agent for use on existing concrete surfaces shall be Sikastix 370, Sikadur Hi-Mod; Horn Co. Epoxtite Binder 2385; or equal.

**B.12 Granular Backfill**
Granular backfill shall meet the requirements of section 8.43.4 of the SSSW.

**C Construction**
**C.1 General**
Notify Larry Anderson (MMSD), 414-225-2241, at least 3 days in advance of the commencement of construction.

The existing manhole is buried below existing grade. Excavate the existing manhole, remove the manhole deck, and construct manhole extension as shown in the plans and in accordance to section 3.5.4 of the SSSW.

Construct a reinforced concrete collar to connect the existing manhole barrel section with the new precast manhole barrel section.

Internal rubber sleeves shall be installed following the application of liner coatings, if any.

Install frame and cover according to plan documents.

The sewer line shall be kept free of debris at all times. Take care to prevent any loose material from entering outlet sewer lines.

Fill the excavation with granular backfill in conformance to section 2.6.2 of the SSSW unless specified otherwise on plans, to existing surface or to appropriate depth for pavement restoration. Consolidate backfill in conformance to section 2.6.14(b) of the SSSW.

Remove all trash from the excavation before placing any backfill. Obtain the engineer's approval of concrete work and attained strength prior to backfilling. Backfill shall be brought up uniformly around manholes and structures to prevent unbalanced lateral loading.

Do not operate earth-moving equipment within 5 feet of walls of manholes for the purpose of depositing or compacting backfill materials. Compact backfill adjacent to concrete walls with hand-operated tampers or other equipment that will not damage the manhole.

**C.2 Manhole Accessibility and Inspection**

The existing manhole is buried below grade and is inaccessible. A structural inspection of the manhole is required but cannot be completed until excavation and access to the manhole is provided.

Notify MMSD 5 days in advance of the manhole becoming accessible and available for inspection. After the 5 days of initial notification, MMSD shall be provided an additional 5 days for video inspection and analysis of the manhole condition. MMSD shall be provided with the necessary access with its equipment to undertake the inspection.

**C.3 Coal Tar Epoxy**

Coal-tar epoxy coating shall only be applied to the manholes as specified in the plans. The requirements and application of the coating for the manhole structures shall conform to chapter 8.7.0 of the SSSW. Coal tar epoxy coating shall be applied to the manhole prior to the structure being delivered to the work site.

**C.4 Staging**

The manhole extension may be installed in multiple phases to accommodate the construction staging of the project. At each interim phase the manhole shall be covered, as directed by the engineer, to protect the structure from damage, prevent debris from entering the structure, and support any anticipated loading. The elevations of each interim

phase will be determined by the engineer during construction. Contact the engineer prior to ordering structures to determine appropriate precast manhole barrel section heights to achieve the interim phase structure elevations.

**D Measurement**
The department will measure MMSD Sanitary Manhole Extension as a unit for each individual manhole, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.5103 | MMSD Sanitary Manhole Extension | Each |

Payment is full compensation for furnishing and installing all materials including pre-cast manhole riser, cone section, frames and covers, grates or lids, steps, chimney adjustment rings, gaskets, joint seals, concrete, steel reinforcement, bonding agents, backfill material; for furnishing all excavation, dewatering, bypass pumping, sheeting and shoring, and masonry work; for backfilling including mechanical compaction and compaction testing; for removing sheeting and shoring; for providing access to MMSD for manhole inspection; for furnishing all testing; for disposal of all surplus or waste material; and for clean-up.

## 282. MMSD Manhole Rehabilitation with Pure Fused Calcium Aluminate Coatings, Item SPV. 0060.5104.

**A Description**
This special provision describes rehabilitating a MMSD manhole with pure fused calcium aluminate coatings as shown in the plans.

**B Materials**
**B.1 General**
Prepare and submit to the engineer patching, infiltration control, grouting, and calcium aluminate liner material specifications and shop drawings prior to installation. Products shall be supplied by same manufacturer to ensure compatibility with the various materials supplied.

**B.1 Patching Material**
A quick setting corrosion resistant cementitious material, shall be used as a patching material and is to be mixed and applied according to manufacturer's recommendations and shall have the following minimum requirements:

| | | |
|---|---|---|
| · Compressive Strength | ASTM C109 | 1,400 psi, 6 hours |
| · Bond Strength | ASTM C952 | Min. 145 psi |
| · Cement | | sulfate resistant |
| · Applied Density | | 105 pcf ± 5 lbs |
| · Shrinkage | ASTM C596 | 0% at 90% R.H. |

Product shall be QSR as manufactured.

**B.2 Infiltration Control Material**

A rapid setting cementitious product specifically formulated for leak control, shall be used to stop minor water infiltration and shall be mixed and applied according to manufacturer's recommendations and shall have the following minimum requirements:

| | | |
|---|---|---|
| · Compressive Strength | ASTM C109 | 1 hour – 400-600 psi |
| · (2-inch Cubes) | | 24 hours - 2,000-2,400 psi |
| · Expansion | ASTM C827 | 1 day – 10 percent |
| · Freeze/Thaw | ASTM C666 | No weight loss after 15 cycles |
| | "Method A" | At 2,000 ppm, test continuing |
| · Pull out strength | ASTM C234 | 14,000 pounds |
| · Placement time | | <60 seconds |

**B.3 Grouting Material**

· A cementitious grout shall be used for stopping active infiltration and filling voids and shall be mixed and applied according to manufacturer's recommendations. The cement grout shall be volume stable and have a minimum one day compressive strength of 250 psi.

· Chemical grouts may be used for stopping very active infiltration and shall be mixed per manufacturer's recommendations.

**B.4 Pure Fused Calcium Aluminate Liner**

An acid resistant pure fused calcium aluminate cementitious liner product shall be used to form a structural/structurally enhanced monolithic liner covering all interior substrate surfaces and shall have the following minimum requirements at 28 days:

| | | |
|---|---|---|
| · Compressive Strength | ASTM C109 | >9,000 psi |
| · Tensile Strength | ASTM C496 | >800 psi |
| · Flexural Strength | ASTM C293 | >1,200 psi |
| · Shrinkage at 95% R.H. | ASTM C596 | 0 percent |
| · Bond | ASTM C882 | >1,600 psi |
| · Applied Density | | 105 pcf ± 5 lbs |
| · Freeze/Thaw | ASTM C666 | 300 cycles, no damage |

**B.5 Steps**

Manhole steps shall be Type PS2-PFS as manufactured by M.A. Industries, Peachtree City, GA 30269; or equal with ½-inch diameter Grade 60 steel reinforcement coated with copolymer polypropylene plastic. Provide certified test data that the steps are capable of withstanding an 800-pound vertical load without sustaining more than a 3/8-inch permanent set when tested in accordance to Section 10 of ASTM C 497.

**B.6 Adhesive Epoxy Anchors**

Provide Adhesive Epoxy Anchors as manufactured by;

- Anchor-It Fastening System by Adhesive Technology Corporation
- Power-Fast Epoxy Injection Gel System by Powers Rawl
- EPCON Injection System by ITW Ramset/Red Head
- Kelipoxy II by Kelken-Gold, Inc,
- Sure-Anchor (j50) by Dayton Superior
- Poly-All Epoxy Anchoring System by Ackerman Johnson Fastening Systems, Inc.
- Five Star Epoxy Anchor Grout by Five Star Products, Inc.
- Or equal.

**C Construction**

**C.1 Cleaning**

Notify Larry Anderson (MMSD), (414) 225-2241, at least three days in advance of the commencement of construction.

Prepare the manhole surface such that it is clean, structurally sound and free from oil, grease, loose mortar, paints, protective coatings, efflorescence, laitance and airing compounds. The condition of the manhole may require the use of an environmentally safe degreasing compound; if so, thoroughly rinse the surface to eliminate any residue.

Use a chemical wash to clean and degrease the interior of the manhole. A high-pressure water spray is not successful in removing all grease and contaminants. The entire structure shall be thoroughly water and/or sand blasted to remove loose or deteriorated material. Clean all accumulations of debris, such as dirt and grease, loose mortar, bricks and concrete, and dispose of properly. Take care to prevent any loose material from entering outlet sewer lines by inserting a ½-inch or smaller mesh protective screen to the manhole outlet.

Remove any existing manhole steps prior to sealing (waterproofing) the structure walls, and installing liners.

The sewer line shall be kept free of debris at all times. Take care to prevent any loose material from entering outlet sewer lines.

**C.2 Pure Fused Calcium Aluminate Liner Preparation**

Place covers over invert to prevent extraneous material from entering sewer lines.

Remove all foreign material from the manhole wall and bench using a high-pressure water spray (min. 1,500 psi). Loose and protruding brick, mortar, and concrete shall be removed using a mason's hammer, chisel and/or scraper. Fill any large voids with quick setting patching material.

Stop all active leaks using quick setting, specially formulated mixes according to manufacturer's recommendations. Some leaks may require weep holes to localize the infiltration during the application. After application, plug the weep holes with the quick

setting mix prior to application of the final coat. When severe infiltration exists, it may be required to drill to pressure grout using grout procedures. Manufacturer's recommendations shall be followed when pressure grouting is required.

The sewer line shall be kept free of debris at all times. Take care to prevent any loose material from entering outlet sewer lines.

**C.3 Pure Fused Calcium Aluminate Liner Installation**

Apply the base coat material in multiple passes. Each application thickness shall not exceed ½ inch and each application is to be rough troweled. Build the base coat out to within ½ inch of required finished dimension.

The final coat shall be as a whole, a minimum thickness of ½ inch throughout. For each bag of product, use the amount of water or water settings required per manufacturer's recommendations following mixing procedures noted on product bag and using the approved equipment for mixing and application.

Discharge the prepared mix into a hopper and mixing shall continue to occur in such a manner as to allow spraying continuously without interruption until each application is complete.

The surface, prior to spraying base coat applications, shall be clean and free of all foreign material and shall be damp without noticeable free water droplets or running water, but totally saturated, just prior to application of each coat.

Spray the materials from the bottom of the wall to the top, to within ½ inch of the original substrate dimension using as many passes as necessary but each application shall not exceed ½ inch. Rough trowel the surface after each pass.

Apply the final application after the base coat applications have begun to take an initial set (disappearance of surface sheen). The final application shall be a minimum thickness of ½ inch. Spray the materials from the bottom of the wall to the top. Trowel the surface to a relatively smooth finish being careful not to over finish or over trowel so as to bring additional water to the surface and weaken it. Apply a brush finish to the troweled finish or top coat surface. Manufacturer's recommendations shall be followed whenever more than 24 hours have elapse between applications.

Caution should be taken to minimize exposure of applied product to sunlight and air movement. If application of additional coats is to be longer than 15 minutes, the structure shall be covered. At no time should the finished product be exposed to sunlight or air movement for longer than 15 minutes before covering or closing access. In environments where humidity level is below 70 percent, it shall be necessary to keep finished product damp for the first 72 hours.

- The final application shall have a minimum of eight hours cure time before being subject to active flow or surcharge.
- Traffic shall be withheld for 24 hours after application is complete.

Precautions shall be taken to keep the mix temperature at time of application below 90 degrees Fahrenheit. Water temperature shall not exceed 80 degrees Fahrenheit. Chill with ice if necessary.

**C.4 Pure Fused Calcium Aluminate Liner Inspection and Testing**

Cast four 2-inch cubes each day or from every pallet of product used. Properly package, label and return to the manufacturer for testing in accordance to the manufacturer's directions for compression strength per ASTM C109 procedure.

Prior to installing coating system, the manhole shall exhibit no visible leakage in the structure, around pipe penetrations or at the interface to the cut open sewer pipe liner. Any leakage shall be corrected.

The manhole shall be visually inspected for leakage and for a smooth, even finish with good bonding to the manhole.

Testing shall be completed to verify the proper thickness of liner coating is applied. Any method that is destructive, such as a dry film scratch tester, shall be followed by a suitable repair to the liner following the test. Any unsuitable coating shall be supplemented or removed and replaced. Any liner which is observed to be not properly adhering or buckling shall be replaced.

**C.5 Steps**

Install manhole steps, at 15 inches on center in all manholes, in strict conformance with the recommendations of the manufacturer. Spacing between any two adjacent steps shall not vary from the specified 15 inches by more than ¼ inch. The distance between the wall of the manhole and the outside face of the rung, measured at the point of embedment, shall not be less than 5-1/8 inches. The minimum embedment in the manhole wall shall be 5-3/4 inches. Installed steps not meeting the tolerances shall be removed and reset. Place an additional step opposite the top step in each manhole. Anchor steps into manhole using Adhesive Epoxy Anchors.

Test all steps for a horizontal pullout load of 400 pounds with the load applied over a width of 3-1/2 inches and centered on the rung. The load shall be applied at a uniform rate until the required test load is reached. The steps will be considered acceptable if they remain solidly embedded after application of the test load and if no cracking or fracture of the step nor spalling of the concrete, masonry, or mortar is evident. Provide suitable hydraulic jacks and gauges to perform the test. All steps failing to meet the required load shall be replaced or reset and retested.

**D Measurement**
The department will measure MMSD Manhole Rehabilitation with Pure Fused Calcium Aluminate Coatings as a unit for each individual manhole, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.5104 | MMSD Manhole Rehabilitation with Pure Fused Calcium Aluminate Coatings | Each |

Payment is full compensation for furnishing and installing all equipment and materials including patching, infiltration control, grouting, calcium aluminate liner materials, steps, and adhesive epoxy anchors; for cleaning, high-pressure water spray, chemical wash; for removing brick, mortar, concrete, steps for liner preparation; for furnishing all inspection and testing; for disposal of all surplus or waste material; and for clean-up.

## 283. Removing MMSD Sanitary Manhole, Item SPV.0060.5105.

**A Description**
This special provision describes removing existing MMSD sanitary manholes in place as shown in the plans.

**B Materials**
Backfill shall be granular backfill in conformance to section 8.43.4 of the SSSW unless specified otherwise on plans. Consolidate backfill in conformance to section 2.6.14(b) of the SSSW.

**C Construction**
Notify Larry Anderson (MMSD), (414) 225-2241, at least 3 days in advance of the commencement of construction.

Remove the manhole in its entirety. Perform work in accordance to the pertinent specifications of standard spec 204, using safe methods and sequence of controlled removal operations.

Abandon unused sewers not to be removed in accordance to Section 3.2.24 of the SSSW.

Fill the excavation with granular backfill in conformance to section 2.6.2 of the SSSW unless specified otherwise on plans, to existing surface or to appropriate depth for pavement restoration. Consolidate backfill in conformance to section 2.6.14(b) of the SSSW.

Provide by-pass pumping of wastewater round construction zone during working hours. During non-work hours, provide temporary connection of replacement sanitary sewer to existing sanitary sewer to provide uninterrupted sanitary sewer service. A “Notice of

Bypass Intent" form must be submitted to MMSD for review and approval prior to any by-pass pumping activities.

The sewer line shall be kept free of debris at all times. Take care to prevent any loose material from entering outlet sewer lines.

Salvage all MMSD frames and covers which become the property of the Milwaukee Metropolitan Sewerage District. Contact Mike Wojtanowski, with Veolia Water at (414) 747-3841 for pickup.

**D Measurement**
The department will measure Removing MMSD Sanitary Manhole as a unit for each individual manhole, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.5105 | Removing MMSD Sanitary Manhole | Each |

Payment is full compensation for providing all excavating; furnishing and installing all materials; for removing manhole; for abandoning unused sewers; for furnishing and placing granular backfill; for salvaging frames and covers; for hauling and disposing of all materials; and for furnishing all labor, tools, equipment, transportation.

## 284. Abandoning MMSD Sanitary Manhole with Concrete Cap, Item SPV. 0060.5106.

**A Description**
This special provision describes installing concrete, concrete cap, and steel reinforcement over the bench of the manhole and abandon existing MMSD sanitary manhole in place as shown in the plans.

**B Materials**
**B.1 Concrete Cap**
Concrete cap shall be a precast flat top slab and conform to C-478 requirements of ASTM specifications.

**B.2 Concrete**
Concrete shall be high early strength Class A Concrete conforming to the requirements of Chapter 8.35.0 and Table 29 of Chapter 8 of the SSSW.

**B.3 Steel Reinforcement**
Steel reinforcement shall conform to C-478 requirements of ASTM specifications.

**B.4 Bentonite Waterstops**
Bentonite waterstops shall be 1-inch by 3/4 inch size flexible strip of bentonite waterproofing compound with an adhesive surface on one side of the strip, waterstop Type RX.

**B.5 Bonding Agent**
Bonding agent for use on existing concrete surfaces shall be Sikastix 370, Sikadur Hi-Mod; Horn Co. Epoxtite Binder 2385; or equal.

**B.6 Backfill**
Utilize backfill slurry as specified elsewhere in these special provisions.

**C Construction**
**C.1 General**
Notify Larry Anderson (MMSD), (414) 225-2241, at least 3 days in advance of the commencement of construction.

Excavate the existing manhole to access the structure. Clean manhole thoroughly and install the high early strength concrete, concrete cap, and steel reinforcement as detailed in the plans.

After the concrete attains a 4000 psi compressive strength, abandon the existing manhole by removing the structure a minimum of three feet below proposed grade in accordance to section 3.2.24 of the SSSW. Fill the excavation with backfill slurry, to existing surface or to appropriate depth for pavement restoration. Pump out excess water from the slurry to ensure adequate consolidation.

The sewer line shall be kept free of debris at all times. Take care to prevent any loose material from entering outlet sewer lines.

**D Measurement**
The department will measure Abandoning MMSD Sanitary Manhole with Concrete Cap as a unit for each individual manhole, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.5106 | Abandoning MMSD Sanitary Manhole With Concrete Cap | Each |

Payment is full compensation for furnishing and installing all materials including concrete, concrete cap, steel reinforcement, waterstops, bonding agent; for excavation; for furnishing and placing backfill; for abandonment and removals; and for disposing of materials.

## 285. Adjusting Sanitary Manhole; Item SPV. 0060.5200.

### A Description

This work includes adjusting sanitary manholes to an elevation as determined by the engineer as well as installing frame and cover, internal frame/chimney seal, in accordance to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and amendments (SSSW) and the "Special Provision Notes for Sanitary Sewer Work" as found in the plans.

Add or remove masonry adjusting rings as needed. This item applies to structures to be lowered less than 6 inches or raised less than 12 inches.

### B Materials

#### B.1 Adjusting Rings

Adjustment rings shall be concrete with steel reinforcement in conformance with ASTM C-478. Precast concrete rings shall have an inside diameter to match the manhole opening, be not less than 2 inches nor more than 6 inches high, and have a wall thickness of 6 inches unless otherwise specified. The rings shall contain a minimum of one No. 2 reinforcing rod centered within the ring. Do not use any cracked or broken rings. The top of precast manhole cones shall be set a maximum of 18 inches lower than established grade in unimproved areas, with the top of the manhole cover being ringed up flush with the existing ground. The minimum number of adjusting rings shall be one 2-inch ring. The maximum height of adjusting rings shall be 8 inches in paved areas. All joints between the adjusting rings shall be filled with grout or mortar, including between the cone and the adjusting ring and the adjusting ring and the frame. Rings shall be grooved to receive a step.

#### B.2 Manhole

Precast manholes and cones shall conform to ASTM Specifications, C478, latest revision.

#### B.4 Manhole Seal

Furnish new Cretex, NPC Flexrib, or approved equal internal frame/chimney Seal, as shown in the plans. The seal shall meet the material requirements of section 8.42.3 and the performance requirements of section 8.42.4 of the SSSW.

### C Construction

#### C.1 General

The location of existing sanitary manholes to be adjusted is indicated on the plans. Adjust these items as shown in the plans. Reconstruct manholes as necessary so that the frames and cover when placed will be at the established required grade; remove the existing frame and cover. Install seals in accordance to the manufacturer's recommended installation procedures. Furnish and use Backfill Slurry in the manhole excavation area to existing surface or to appropriate depth for pavement restoration. Salvage the existing frame and cover.

**C.2 Surface Preparation**
Remove manhole cover and power wire brush the lower 3 inches of the manhole frame to remove any loose rust or scale and repair any imperfections by either grinding smooth or filling with mortar. A smooth, clean sealing surface is required. Realign the casting if it is offset more than approximately 2 inches from the chimney. Remove all loose and protruding mortar and brick from the upper 7-Inch chimney and clean surface by power wire brushing. Provide a 4-Inch wide sealing surface starting 2 inches down from the bottom of the frame.

All sealing surfaces must be circular, reasonably smooth, clean and free of any loose material or excessive voids. If such a surface does not exist for the bottom of the sleeve to seal against, use one-component, quick-set, high strength, non-shrink, polymer modified patching mortar which has been formulated for vertical or overhead use. If the bottom of the sleeve is to seal against the top of an eccentric (straight side) cone and an inadequately high vertical surface does not exist, contact the manufacturer to obtain details to build the required vertical surface.

Use caulk to fill minor irregularities in the bottom sealing surface. The caulk shall be a butyl rubber caulk conforming to AASHTO M-198, Type B. Apply a single bead of the caulk to the center portion of the lower sealing surface of the sleeve.

Any flaws in the manhole frame, such as minor cracks, pits or protrusions, shall be repaired by either filling with mortar or grinding smooth.

**D Measurement**
The department will measure Adjusting Sanitary Manhole as a unit per each adjustment, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.5200 | Adjusting Sanitary Manhole | Each |

Payment is full compensation for furnishing and installing all materials including adjusting rings, masonry, and internal frame/chimney seals; for excavating, backfilling, and compacting; for disposing of surplus materials; and for cleaning out and restoring the structure.

## 286. Reconstruct Sanitary Manhole, Item SPV.0060.5201.

**A Description**
This work includes reconstructing a sanitary manhole to an elevation as determined by the engineer, in accordance to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and amendments (SSSW), and as hereinafter provided.

## B Materials

### B.1 Manhole

Manhole barrel sections shall be constructed of precast reinforced concrete sections.

Precast manholes and tops shall conform to ASTM Specifications, C478, latest revision.

### B.2 Manhole Seal

Sanitary manhole seal–internal/external, as shown in the construction details on the plans, shall meet the material requirements of section 8.42.3 and the performance requirements of section 8.42.4 of the SSSW.

### B.3 Joints

Joints for precast manholes shall meet the requirements of ASTM C-443, latest revision, except that sealant shall be butyl rubber gasket or butyl rubber rope. Flexible butyl rubber gaskets or rope shall comply with the physical requirements for Type "B" gaskets in AASHTO Designation M-198, or Federal Specification SSS-00210-A, sealing compound, preformed plastic for expansion joints and pipe joints.

### B.4 Steps

All manholes shall be provided with steps equally spaced vertically on center installed by the manufacturer as shown on the standard detail sheet. Steps shall be embedded into the riser or conical top section of the wall a minimum of 3 inches. Manhole steps shall be Type PS-2-BG as manufactured by M.A. Industries, Peachtree City, GA 30269; or equal. Provide certified test data that the steps are capable of withstanding an 800- pound vertical load without sustaining more than a 3/8-inch permanent set when tested in accordance to Section 10 of ASTM C 497.

### B.5 Elastomeric Waterproofing Sealer

Elastomeric waterproofing membrane shall be a single component, bitumen-modified, moisture-curing polyurethane similar to TREMproof 60 as manufactured by Tremco, 10701 Shaker Blvd., Cleveland, Ohio 44104; Duramem V500 as manufactured by Pecora Corporation, 2601 Oakland Avenue, Garland, Texas 75040; Thiodeck C.F. as manufactured by Toch/Carboline Company, 350 Hanley Industrial Court, St. Louis, Missouri 63144; or equal.

### B.6 Plastic Sheet

Plastic sheet shall be clear plastic, minimum 4 mils. thick, of length and width to cover elastomeric waterproofing sealer.

### B.7 Granular Backfill

Granular backfill shall consist of hard durable particles or fragments of stone, gravel, or sand. Granular backfill shall conform to the following grading requirements:

**GRADING REQUIREMENTS FOR GRANULAR BACKFILL**

| Sieve Sizes | Percent Passing by Weight |
|---|---|
| 3 inches | 100 |
| 2 inches | 95 – 100 |
| No. 4 | 35 - 60 |
| No. | 200 5 - 15 |

**C Construction**

**C.1 General**

Reconstruct manholes to conform to the detail on the standard detail sheet and in the locations shown in the plans.

Salvage and reinstall existing frames and covers.

**C.2 Backfill**

Backfill with granular backfill material. Place in suitable lifts not exceeding 8 inches loose depth and compact each lift to a minimum of 90 percent of maximum density as determined by AASHTO T 180. Compact with mechanical vibrating or impact tampers.

Remove all form materials and trash from the excavation before placing any backfill. Backfill around manholes only after the concrete has attained 2/3 of the specified compressive strength. Obtain the engineer's approval of concrete work and attained strength prior to backfilling. Backfill shall be brought up uniformly around manholes and structures to prevent unbalanced lateral loading.

Do not operate earth-moving equipment within 5 feet of walls of manholes for the purpose of depositing or compacting backfill materials. Compact backfill adjacent to concrete walls with hand-operated tampers or other equipment that will not damage the manhole.

**C.3 Elastomeric Waterproofing Sealer**

Elastomeric waterproofing sealer shall be applied to all gravity sewer manholes. Thoroughly sandblast the section of the manhole frame over which the sealer is to be applied, the manhole header, extension and cone and the top 12 inches of the manhole riser. All surfaces shall be free of dust, oil, rust, loose materials and other contaminants. Take necessary precautions to prevent rebound from the sandblasting operation to enter the sewer system. If the mortar between grade rings or brick courses is removed to a depth greater than 1/4 inch by the sandblasting, the joints shall be refilled with mortar as specified herein. All new masonry work shall be cured a minimum of 24 hours prior to applying the waterproofing sealer.

Apply the 4-inch wide bond breaker tape completely around the manhole circumference and centered over the mortar joint between the manhole frame and the manhole extension. Immediately before applying the sealer, wipe all surfaces with a cleaner and immediately prime. The cleaner and primer shall be furnished by the sealer manufacturer. Apply the

sealer with a trowel, roller or by spraying to achieve a thickness of not less than 100 wet mils. Do not apply the sealer when the ambient temperature is below 40 degrees F. The sealer shall extend from 9 inches below the bottom of the manhole cone and be carried over the top and onto the flange of the frame a minimum of 5 inches.

Allow the sealer to cure a minimum of 24 hours before backfilling when the ambient temperature is above 70 degrees F, and 48 hours when the ambient temperature is below 70 degrees F. Immediately before backfilling, loosely wrap two layers of 4 mil plastic sheet over the sealed area to prevent direct contact between the sealer and the backfill material.

**D Measurement**

The department will measure Reconstruct Sanitary Manhole as a unit for each individual manhole, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.5201 | Reconstruct Sanitary Manhole | Each |

Payment is full compensation for providing and installing all required materials, including masonry and fittings: for salvaging and reinstalling existing covers, including frames, grates or lids; for furnishing all necessary excavation, backfilling, disposing of surplus material, and for cleaning out and restoring the work site.

## 287. Indigo, Wild Baptisia Cont #1, Item SPV.0060.6000; Catmint, Walker's Low #1 Cont, Item SPV.0060.6001; Coneflower, Magnus Purple #1 Cont, Item SPV.0060.6002; Daylilly, Romantic Returns #1 Cont, Item SPV.0060.6003; Grass, Karl Foerster #1 Cont, Item SPV.0060.6004; Grass, Overdam Feather Reed #1 Cont, Item SPV.0060.6005; Grass, Northwind Switch #1 Cont, Item SPV.0060.6006; Grass, Prairie Dropseed #1 Cont, Item SPV.0060.6007; Penstemon, Husker Red #1 Cont, Item SPV.0060.6008; Sage, Caradonna Meadow #1 Cont, Item SPV.0060.6009; Sage, Russian #1 Cont, Item SPV.0060.6010; Sunflower, False #1 Cont, Item SPV.0060.6011; Weed, Chocolate Joe-Pye #1 Cont, Item SPV.0060.6012.

**A Description**

This special provision describes furnishing and planting perennial plants of the species, varieties and sizes specified, in accordance to standard spec 632, as modified in the article Furnishing and Planting Plant Materials, and as hereinafter provided.

**B Materials**
Provide plants of the specific species, variety, size, color and other characteristics as shown on the plans and Plant Data chart unless prior written approval of the engineer is provided in advance for any substitution.

**C Construction**
Plant perennials in prepared beds that are a minimum of 6"deep and backfilled with Planting Mixture (632.2.3.4). Incorporate timed-release fertilizer thoroughly into the top 3" inches of planting soil at the manufacturers recommended rate. Use a fertilizer conforming to the following minimum requirements:

Nitrogen……..……14%
Phosphoric Acid……..……14%
Potash…….14%

Thoroughly water-in plants to eliminate all air pockets in the planting pit.

Plant all perennials between May 1st and September 1st unless directed otherwise by the engineer.

Remove and dispose of all excess material from site.

**D Measurement**
The department will measure Perennials by Each unit in place, and the quantity to be paid shall be the number of perennials planted, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.6000 | Indigo, Wild Baptisia #1 Cont | Each |
| SPV.0060.6001 | Catmint, Walker's Low #1 Cont | Each |
| SPV.0060.6002 | Coneflower, Magnus Purple #1 Cont | Each |
| SPV.0060.6003 | Daylilly, Romantic Returns #1 Cont | Each |
| SPV.0060.6004 | Grass, Karl Forester #1 Cont | Each |
| SPV.0060.6005 | Grass, Overdam Feather Reed #1 Cont | Each |
| SPV.0060.6006 | Grass, Northwind Switch #1 Cont | Each |
| SPV.0060.6007 | Grass, Prairie Dropseed #1 Cont | Each |
| SPV.0060.6008 | Penstemon, Husker Red #1 Cont | Each |
| SPV.0060.6009 | Sage, Caradonna Meadow #1 Cont | Each |
| SPV.0060.6010 | Sage, Russian #1 Cont | Each |
| SPV.0060.6011 | Sunflower, False #1 Cont | Each |
| SPV.0060.6012 | Weed, Chocolate Joe-Pye #1 Cont | Each |

Payment is full compensation conforming to standard spec 632.5.

## 288. Southwest Core Pond Outlet Storm Sewer Structure, Item SPV.0060.8002.

**A Description**
Furnish and install pond outlet Storm Sewer Structure in accordance to the pertinent provisions of standard spec 611, as shown on the plans and as hereinafter provided. Furnish and install trash racks on the outlet Storm Sewer Structure. Furnish and install trash racks in accordance to the pertinent provisions of standard specs 506 and 513, as shown on the plans and as hereinafter provided. Provide orifice holes and anti-seep collar as shown on the plan.

**B Materials**
Furnish manhole materials in accordance to standard spec 611.

Furnish steel conforming to the requirements of standard spec 506.2.2.1. Furnish steel galvanized in accordance to ASTM A123 and ASTM 1153 as applicable.

Trash racks shall be fabricated from structural steel shapes, flat bar and plates and shall be galvanized after fabrication. Shop drawings for the trash racks shall be submitted to the engineer for approval prior to fabricating the trash racks.

Furnish bolts, nuts and washers for the installation of the trash racks onto the Outlet Storm Sewer Structures. Bolts, nuts and washers in accordance to standard spec 513.2.2.5.

**C (Vacant)**

**D Measurement**
The department will measure Southwest Core Pond Outlet Storm Sewer Structure as each individual unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.8002 | Southwest Core Pond Outlet Storm Sewer Structure | Each |

Payment is full compensation for providing and placing all materials, including all masonry, steel and pipe connections, and other fittings; furnishing and installing trash racks; for providing orifice holes and anti-seep collars; for furnishing all excavating, backfilling, disposing of surplus material, and for cleaning out and restoring the work site.

## 289. Inlet Covers Type 57, Item SPV.0060.8004.

**A Description**
The work under these items shall be in accordance to the requirements of standard spec 611 and the details as shown on the plans.

**B (Vacant)**

**C (Vacant)**

**D Measurement**
The department will measure Inlet Cover (Types) by the unit in place, furnished, installed and acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.8004 | Inlet Covers Type 57 | Each |

Payment is full compensation conforming to standard spec 611.5.

## 290. Cover Plates Left-In-Place, Item SPV.0060.8005.

**A Description**
This special provision describes furnishing and installing a steel plate to cover storm sewer structures which will support construction, backfill material, and traffic loading in accordance to standard spec 611, as shown on the plans, and as hereinafter provided.

**B Materials**
Provide a ¾-inch minimum thickness steel plate that extends to the outside edge of the masonry walls.

Provide ¼-inch diameter steel bolts and epoxy to secure the cover plate to the top deck of the structure.

Backfill with base aggregate dense, 1 ¼-inch.

**C Construction**
Remove all loose debris and other material on the structure deck which would interfere with cover plate installation. Drill 3/8-inch holes in the cover plate, centered in each corner. Set the cover plate on the structure deck, ensuring the access hole is completely covered and that the cover plate extends to the edges of the masonry. The cover plate shall be below the proposed flow line elevation. Embed and epoxy each ¼-inch steel bolts a minimum of 2-inches into the structure deck through each drilled hole. Backfill to the subgrade elevation any voids above the cover plate with base aggregate dense 1 ¼-inch.

Cover plates left in place become the property of the department after obtaining final acceptance from the engineer

**D Measurement**
The department will measure Cover Plates Left-In-Place as each individual cover plate left in place, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.8005 | Cover Plates Left-In-Place | Each |

Payment is full compensation for furnishing and installing the cover plate and leaving cover plates in place; furnishing and installing steel bolts; base aggregate dense 1 ¼-inch backfill; and for excavation.

## 291. Reconnect Storm Sewer Laterals, Item SPV.0060.8007.

**A Description**
This special provision describes reconnecting existing storm sewer laterals to new structures or new pipe.

**B Materials**
Provide culvert pipe concrete collars in accordance to standard spec 520.2.4. Provide storm sewer pipe-to-pipe couplings and joint mastic sealant in accordance to standard spec 607.2.

**C Construction**
Identify all connecting storm sewer laterals in to existing storm sewer structures prior to structure modification or removal. Remove existing storm sewer lateral pipes to the nearest structurally whole intact joint. Brush and clean the pipe joint at the connection. Replace lateral pipes in-kind having equivalent diameters, materials, and lateral pipe classing. Ensure positive drainage is achieved when connecting the storm sewer lateral to the new inlet or curb outlet structure. The contractor may salvage surplus pipe with prior approval by the engineer. Connect the existing pipes to the new pipes with the appropriate mission pipe–to-pipe couplings, mastic joint sealant, concrete collars, or by other means approved by the engineer.

**D Measurement**
The department will measure Reconnect Storm Sewer Laterals as each individual unit, acceptably installed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.8007 | Reconnect Storm Sewer Laterals | Each |

Payment is full compensation for removing existing connections, furnishing and installing all materials, brushing and cleaning existing pipe, coring structures, couplings, joint mastic sealant, concrete collars, and pipe.

## 292. Manhole 9-Foot Special, Item SPV.0060.8012; 10-Foot Special, Item SPV.0060.8013.

**A Description**
This work shall consist of design and construction of either a cast-in-place or precast storm sewer structure made of concrete with necessary reinforcement, metal frames, grates and lids, including required excavating and backfilling.

**B Materials**
Conform to standard spec 611.2.

**C Construction**
Conform to standard spec 611.3.

**D Measurement**
The department will measure Manhole (Size) Special by each individual unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.8012 | Manhole 9-Foot Special | Each |
| SPV.0060.8013 | Manhole 10-Foot Special | Each |

Payment is full compensation for structure design; providing all materials, including all masonry, for Grade "A" concrete adjustments and monolithic concrete shimming; conduit and sewer connections, steps and other fittings; for furnishing all excavating and backfill; disposing of surplus material; and for cleaning out and restoring the work site. The department will pay for covers, including frames, grates, and lids separately.

The department will apply contract unit prices without adjustments to the quantities of manholes constructed to depths not greater than one foot above or below the elevations shown on the plans. Manholes that the engineer orders constructed to a depth greater than one foot above or below elevations shown on the plans will be specified for extra work and paid for in accordance to standard spec 109.4.

## 293. Pipe Connection to Existing Structure, Item SPV.0060.8015.

**A Description**
This special provision describes connecting new storm sewer pipe to existing structure.

**B Materials**
Conform to standard spec 608.2 and standard spec 611.2

**C Construction**
Conform to standard spec 607.3 and standard spec 611.3

**D Measurement**
The department will measure Pipe Connection to Existing Structure by each pipe connected, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.8015 | Pipe Connection to Existing Structure | Each |

Payment is full compensation for performing all work; excavation, backfilling, furnishing, masonry and fittings; disposing of surplus material, coring holes in existing structure to connect new pipe; and installing all materials, couplings, concrete collars, and pipe.

## 294. Removing Bulkhead, Item SPV.0060.8018.

**A Description**
This special provision describes removing existing bulkhead as shown in the plans, and as hereinafter provided.

**B (Vacant)**

**C Construction**
Carefully remove the bulkhead without damaging the pipe. Replace portion of damaged pipe with similar size and material.

**D Measurement**
The department will measure Removing Bulkhead by each bulkhead removed, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.8018 | Removing Bulkhead | Each |

Payment is full compensation for furnishing all materials; removing bulkhead, replacing damaged pipe material including concrete collar around the pipe; and excavating and backfilling where necessary.

## 295. Inlet Covers Type 27-M Bolted, Item SPV.0060.8050.

**A Description**
The work under these items shall be in accordance to the requirements of standard spec 611 and the details as shown on the plans.

**B (Vacant)**

**C (Vacant)**

**D Measurement**
The department will measure Inlet Covers Type 27-M Bolted by the unit in place, furnished, installed and acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.8050 | Inlet Covers Type 27-M Bolted | Each |

Payment is full compensation for providing new covers, including frames and grates, bolts, and all other required materials; and for installing each cover.

## 296. Removing Welds from Sewer Access Covers, Item SPV.0060.8052.

**A Description**
This special provision describes maintaining and removing welds and mastic left in place, installed during previous contracts, from sewer access covers at locations as shown on the plans. This work also includes removing welds and mastic installed during this contract.

**B (Vacant)**

**C Construction**
Maintain welds left in place from a previous contract by promptly rewelding failed welds in accordance to the Welding Sewer Access Covers specification. Remove welds, mastic, and sharp edges from covers and fixtures after freeway traffic is permanently shifted from them as shown in plans or directed by the engineer. Repair or replace covers damaged due to welding removal as the engineer directs.

**D Measurement**
The department will measure Removing Welds from Sewer Access Covers as each individual cover acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.8052 | Removing Welds from Sewer Access Covers | Each |

Payment is full compensation for re-welding failed welds from a previous contract; removing welds; removing mastic; and repairing or replacing damaged covers due to welding removal.
SEF Rev. 14_0924

## 297. Remove and Cap Existing Drainage Storm Sewer Structure, Item SPV.0060.8062.

### A Description

This item describes remove and cap existing drainage Storm Sewer Structure with concrete and necessary reinforcement, including required excavating and backfilling in accordance to construction details shown on plan, the standard specifications, and as hereinafter provided.

### B Materials

Furnish materials conforming to standard spec 501 for concrete, standard spec 505 for reinforcement, and standard spec 506 for structural steel and miscellaneous metals.

Furnish grade A concrete with Type II cement conforming to standard spec 501.2. Furnish ASTM 617 Grade 60 reinforcing steel.

Furnish plastic waterstop conforming to standard spec 502.3.6.4 or butyl rubber seal per sealant manufacturer's recommendations conforming to recommendation ASTM C 990.

Furnish support assemblies conforming to standard spec 611.2.2.

### C Construction

Excavate and backfill as specified for excavation for Storm Sewer Structures in standard spec 206, except do not backfill concrete brick until at least 3 days after completing the unit. Use granular backfill material for backfilling.

Construct concrete as specified in standard spec 501, and as specified for culverts and retaining walls in standard spec 504.

Construct concrete brick as specified in standard spec 519.

Construct structural steel and miscellaneous metals as specified for steel bridges in standard spec 506.

Cure the concrete by one of the methods specified in standard spec 502.3.8 for curing concrete in sub Storm Sewer Structure units.

Construct the masonry and install waterstop material to provide a watertight joint between new masonry cap and existing manhole.

Clean and remove all materials and debris deposited or lodged in the manhole due to the contractor's operations during construction.

**D Measurement**
The department will measure Remove and Cap Existing Drainage Storm Sewer Structure as each individual unit of work, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.8062 | Remove and Cap Existing Drainage Storm Sewer Structure | Each |

Payment for the Remove and Cap Existing Drainage Storm Sewer Structure is full compensation for providing all materials, including all masonry; for furnishing all excavating; for sheeting and shoring; for backfilling; for providing granular backfill material; for control of water; for temporary support and protection of existing utilities to construction; for removing sheeting and shoring; disposing of surplus material, for providing waterstop or butyl rubber seal; and for cleaning out and restoring the work site. Granular backfill material required for backfilling is incidental to the work.

## 298. Removing Cover Plates Left In Place, Item SPV.0060.8065.

**A Description**
This section describes removing steel cover plates placed and left in place on storm sewer structures under previous contracts.

**B (Vacant)**

**C Construction**
Excavate and carefully remove steel cover plates at locations shown on the plan or as directed by the engineer. Saw cuts may be required to remove cover plates. Do not damage storm sewer structures and pipes while removing cover plates.

**D Measurement**
The department will measure Removing Cover Plates Left In Place as each unit, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.8065 | Removing Cover Plates Left In Place | Each |

Payment is full compensation for excavating, sawcutting, disposing of excavated material and cover plates; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work. Temporary cover plates placed under this contract are paid under that bid item and no payment will be made for those as part of this bid item. Placing new frame and grate, adjusting and/or reconstructing inlets or manholes are paid under appropriate bid items. No additional payments will be made for replacing damaged storm sewer structures and pipes when removing cover plates.

## 299. Welding Sewer Access Covers, Item SPV.0060.8080.

### A Description

This special provision describes installing and maintaining welds on sewer access covers subjected to live freeway traffic during staged construction.

### B Materials

Furnish nickel alloy electrodes stored in hermetically sealed containers. Utilize Lincoln Ferroweld, Crown 255, ESAB Nickel-Arc 99, MG289 ACDC Super Strength Electrode for Contaminated cast iron, or other nickel alloy stick electrodes as approved by the engineer. Use a mastic joint sealer in accordance to standard spec 607.2.2(1) and guidance within The Society for Protective Coatings.

### C Construction

Remove material that will interfere with mastic application. Completely line the inside ledge of the sewer access with mastic as directed by the engineer.

Remove material that will interfere with weld connections. Clean the weld locations on the cover and casting to bright metal with a steel grinding wheel.

Weld conforming to AWS A5.15 using certified operators. Preheat the casting/cover in the area of the weld to a minimum of 100 degrees F.

For round covers make a minimum of six single-pass, 2-Inch-long welds at the 12, 6, 10, 4, 8, and 2 o'clock positions in that order.

For rectangular covers make a minimum of eight single-pass, 2-Inch-long welds in a similar alternating order with welds at the 1/3 and 2/3 points of each side.

Cover each weld with a 2-Inch thick layer of clean, dry, sand in a temperature range of 70 to 90 degrees F immediately after welding to slow cooling. Do not cool with water or compressed air.

Maintain the work by promptly rewelding failed welds. The engineer may allow alternative fastening methods if welds fail repeatedly. Repair or replace damaged covers as the engineer directs.

**D Measurement**
The department will measure Welding Sewer Access Covers as each individual cover, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.8080 | Welding Sewer Access Covers | Each |

Payment is full compensation for cleaning covers, weldings and re-welding failed welds from current contract. Payment also includes repairing or replacing covers damaged due to welding. Removal of welds will be paid for under a separate item.
SEF Rev 14_0924

## 300. Intermediate Jacking Station, Item SPV.0060.8099; Storm Sewer Construction, Item SPV.0090.8096.

**A Description**
This special provision describes the requirements for constructing the storm sewer pipe between manholes Z2431, Z2623 and Z2683 by open cut excavation and/or tunnel excavation methods. Tunnel excavation must be of a one-pass system, utilizing a Microtunnel Boring Machine (MTBM), followed by jacked reinforced concrete pipe.

**A.1 Contractor's Qualifications for Tunnel Excavation**
The contractor or the subcontractor hired to perform the tunneling operations must have a successful record with similar construction for a minimum of 5 years and a minimum of five similar projects (i.e., tunnel bores in soil with an outside diameter of 5 feet or larger and a total tunnel length of more than 1000 feet per project or longer) and a demonstrated ability and capacity to perform the work under this contract to the satisfaction of the engineer.

The contractor must provide personnel meeting the qualification requirements as stated below. The engineer may suspend work with no additional compensation or schedule extension, if the contractor substitutes unqualified personnel for accepted personnel during construction. If work is suspended due to the substitution of unqualified personnel, adjustment in contract time resulting from the suspension of work will not be permitted.

Superintendent: Supervise each shift by at least one person with previous experience of the work. The superintendent must have at least 5 years and 1,000 feet of experience in similar-sized projects (minimum three projects).

Operator: Provide experienced system operators with prior knowledge and ability in the proper operation of the systems being employed. Operators must have at least 5 years' experience and have completed at least 1,000 feet of tunnel with similar equipment on at least three projects.

Surveyor: Provide licensed Surveyor registered in the State of Wisconsin responsible for line-and-grade control with prior experience in similar projects.

Provide evidence of OSHA certification for site safety representative and personnel responsible for air quality monitoring.

**B Materials**

**B.1 Open Cut Excavation**

Conform to standard spec 608.2.

**B.2 Tunnel Excavation**

**B.2.1 General**

The contractor is responsible to supply all materials, equipment, qualified personnel, and submittals required to meet these specifications. Select a MTBM that meets the requirements presented below.

In the event that other specification clauses cause ambiguity or conflict with this special provision, this special provision take precedence unless otherwise accepted by the engineer. Open-face or no-face pressure mining methods are not permitted and will not be considered.

Include the following features, as a minimum in the selected MTBM:

a. A slurry shield MTBM must be used for all tunneling work required for this project. The machine must be manufactured by a company that specializes in the design and fabrication of this type of equipment. The machine must be capable of providing pressurized face support during both excavation and shutdown periods.
b. The machine must be capable of exerting a controllable pressure against the face, during both excavation and shutdown periods, to support the excavation face, prevent groundwater inflows, and prevent loss of ground. Determine and submit for approval a safe range of slurry pressures at the face that are high enough to provide adequate face support and groundwater pressure resistance while low enough to prevent ground heave. The cutting wheel chamber must be equipped with at least one operating, calibrated pressure cell with an accuracy that allows face pressure to be maintained within ±0.1 bar of the desired pressure during mining.
c. A slurry mixture and consistency must be used that minimizes slurry migration into the ground and allows a slurry cake to develop for ground support. Slurry line density measurements and any other suitable devices must be used to check against excess lost ground (over mining) by computing the rate of tunnel muck removed as a percentage of the theoretical excavated soil weight for each pipe jacked.

d. Pumps and intake and discharge piping must be used that are compatible with the tunnel drive lengths, depths, soil types and machine advance rate anticipated. The slurry return lines must consist of abrasion-resistant hoses with high pressure rating that can resist the abrasive cuttings of cobbles and boulders. The intake ports' size in the crushing chamber must be adequate to allow for passing of all material sizes produced at the face. Select type and size of pump impellers to accommodate the anticipated cobble and boulder cuttings.
e. A surface separation plant must be provided and equipped with screens, centrifuges, cyclones and settling tanks for efficient removal of muck (both coarse and fine-grained fractions) from the slurry at a rate compatible with the anticipated machine advance rate.
f. Tunneling equipment selected for the project must be suitable for and capable of efficiently advancing through the geologic conditions described in the Geotechnical Baseline Report.
g. The MTBM must have sufficient torque and speed for efficient operation through the anticipated ground conditions and must be capable of being rotated clockwise and counter-clockwise to adjust for rolling effects. The machine's torque capacity must be high enough to provide ability to mine through zones of cobbles and boulders.
h. The MTBM must have a rock crusher, or similar means, capable of fracturing rocks up to at least 24 inches. The cutting wheel must include a combination of disk cutters and other types of cutters that are designed for boulder fracturing and mining capability in the anticipated soil formations. The MTBM must have interchangeable cutters. The contractor must determine the cutter types and configuration.
i. The MTBM must be sized to ensure compatibility with one-pass pipe jacking and the structural capacity of the jacked pipe support system. Skinned-up MTBM is not permitted.
j. The machine must be steerable in both the vertical and horizontal directions to allow the operator to maintain line and grade within the specified tolerances.
k. The machine must be equipped with a digital guidance system with continuous display of actual tunnel alignment vs. the design alignment.
l. The selected machine must be able to withstand all loads and pressures that are likely to be encountered during tunneling operations without distress or excessive deformation. Shield, cutting wheel and other metal work in contact with moving soil or muck must be suitably protected to minimize abrasion damage.
m. The machine must have a uniform exterior surface from the leading edge to the trailing edge, and free of projections, except beads, that could produce over excavation or voids.
n. Total overcut around the jacked pipe, defined as the difference between the excavated diameter at the heading and the jacked pipe outside diameter, must be less than 3 inches in diameter.

o. The tail of the machine must have a sealing system and joint cushion that prevents ground and groundwater infiltration and pipe damage when thrusting or reacting against it.
p. The machine must include monitoring and recording equipment sufficient for documentation of thrust forces, start and stop times, rate of advance, position (heading station and pitch), line and grade deviation, cutting head torque and speed, advancement thrust, face pressure, face standup time/stability, computed muck volume, ventilation and atmosphere monitoring data and any other pertinent information for each pipe advance or initial support set.
q. The machine must be equipped with a ventilation and atmosphere control system capable of reducing and/or eliminating dust, vapors, fumes, and other atmospheric impurities.
r. The machine must be equipped with a continuous monitoring system for noxious and explosive gases. Include audible and visual alarms at the end of the shield that will be triggered if threshold levels, as specified by OSHA, are reached at any point along the shield. The tunnel machine must have an emergency shut-off switch or control in case noxious or explosive gasses are detected.
s. All of the various components and systems must be new or refurbished to be like new with refurbishment certificate from the manufacture within one year prior to the tunnel excavation work specified herein.

**B.2.2 Lubrication System**

Provide a pipe lubrication system to inject bentonite slurry and/or polymer at the tunnel machine and pipe locations and in quantities as required to minimize pipe friction and jacking forces. Monitor and control pressures to prevent injection pressures at the pipe annulus from causing ground heave or "frac-out" (hydraulic fracturing) of the ground.

Only bentonite or polymers must be used as pipe lubricant. Oil-based lubricant is prohibited.

**Bentonite:** Bentonite must be high-swelling montmorillonite clay or other product as approved by the engineer.

**Polymers:** Polymers used as pipe lubricant or additive to bentonite must be non-toxic.

**B.2.3 Jacked Pipe**

Pipe class and inside diameter of the jacked pipes must be as per plans, and must conform to standard spec 608.2 Reinforced Concrete Pipe Storm Sewers and ASCE 27-00 - Standard Practice for Direct Design of Precast Concrete Pipe for Jacking in Trenchless Construction. The selection of the pipes' outside diameter must be coordinated with the selected tunnel machine to maintain the total overcut around the pipe under the maximum allowed magnitude as specified herein. In case of conflict between standard spec 608.02 and ASCE 27-00, the most-stringent requirement must apply.

Pipe to be jacked into place must have minimum concrete compressive strength of 6,000 psi and have flush joints. No pipe must be delivered to the jobsite until the concrete strength has reached 6,000 psi as determined by core samples taken and tested in accordance to AASHTO T 22 or manufacturer's certificate.

Each piece of pipe must have one lubrication/grout port with threaded fittings at the crown and one lubrication/grout port with threaded fittings at each spring line for pressure grouting. Ports and fittings must be attached to the pipe in a manner that will not materially affect the strength of the pipe. Each grout port must have a one-way check valve and must be 2-inch minimum diameter with plugs cast into the pipe at the time of manufacture. Plugs for sealing the fitting must be capable of withstanding all external and internal pressures and loads without leaking. Pipe plugs must provide resistance to corrosion equal to the pipe, coating, and lining.

## C Construction

### C.1 Submittals

#### C.1.1 General

Prepare and submit documentation of shop drawings, and open cut and/or tunnel work plan at the preconstruction meeting or at least 21 calendar days prior to beginning open cut and/or tunnel construction, whichever date is earlier. The engineer will accept the submittal as submitted or return the submittal with requested revisions. Do not start any work until the engineer provides acceptance of the documentation of contractor's qualifications, shop drawings and open cut and/or tunnel work plan. Acceptance of the submittals does not relieve the contractor of responsibility for successful completion of the tunnels.

#### C.1.2 Subsurface Conditions

The contractor must review the Geotechnical Baseline Report – South Leg Storm Sewer – Manholes Z2822 to Z2431 (referred as "Geotechnical Baseline Report" herein) for the subsurface conditions.

#### C.1.3 Submittals for Approval

**Documentation of Contractor's Qualifications:** The contractor must submit the project experience documentation and resumes of site engineers, superintendents, shifters, operators, and all other key personnel, meeting the qualifications delineated in the article of contractor's qualifications. The project experience documentation for each project must include a brief project description, detail the size and length of the tunnels, tunneling methods used during installation, local soil conditions, actual construction time and contact information consisting of an individual's name and current phone number. Contacts must be capable of verifying project participation. The resumes must contain a summary of each individual's experience and it must be complete enough for the engineer to determine whether each individual has satisfied the qualifications.

**Shop Drawings**: The contractor must prepare and submit detailed shop drawings and pertinent descriptions, data and calculations for all items to be incorporated into the finished work. The Drawings and calculations must show compliance to specified requirements and applicable codes and must bear the seal, signature and date of a professional engineer registered in the State of Wisconsin. As a minimum, include the following:

a. An open cut and/or a tunnel cross-section showing the theoretical excavation perimeter, based on the proposed open cut and/or tunneling equipment, and the proposed pipe inside and outside perimeters.
b. Pipe drawings which include reinforcement details, joint details, joint cushion materials, fabrication tolerances, and grout/lubrication port detail.
c. Design calculations demonstrating that the pipe is capable of sustaining the maximum stresses to be imposed during jacking in accordance to ASCE 27-00, Standard Practice for Direct Design of Precast Concrete Pipe for Jacking in Trenchless Construction. The axial strength of the selected pipe must be designed based on a factor of safety of 2.5 or more against failure under the maximum anticipated jacking force. The calculations must take into account maximum anticipated ground loads (earth, groundwater and surcharge pressure), live loads, jacking forces, eccentric forces due to steering, external loads such as traffic, and any other loads that may be reasonably anticipated. All loads must be shown and described. Use the maximum allowable bearing stress criteria specified in this section.
d. Calculations showing the hydraulic pressure that is required to develop the maximum allowable jacking capacity for main jacks and intermediate jacking stations. A description of controls to ensure that the maximum allowable hydraulic pressure will not be exceeded during jacking operations must also be provided. Calculations must demonstrate that the soils behind the backstop (or thrust wall) will sustain the maximum forces developed by the main jacks.
e. Calculations showing anticipated face pressure and side resistance for the tunnel machine and pipe string. Calculations must confirm the number of intermediate jacking stations per tunnel drive.
f. Details of intermediate jacking station(s) and connection between the intermediate jacking station(s) and the pipe.
g. Details of main jacking station.

**Tunnel Work Plan**: Prior to the start of work, the contractor must submit a detailed work plan to the engineer. The work plan must include descriptions indicating the proposed locations of shafts, facilities, and equipment to be utilized and describing the methods of construction. Items must include, but are not limited to:

a. Tunneling Equipment:

i. A detailed description of the methods and equipment to be used in completing the tunnel drive. Include a description of how the proposed equipment and operations will prevent loss of ground and surface heave during operations. This description should include procedures to handle face stability and groundwater inflow and should also include a plan for inspection of the ground conditions and removal of obstructions. Clearly state the maximum size of boulder or rock fragment that can be excavated and removed by the proposed tunnel machine and for the procedure and equipment to be used to fracture-split and excavate of any boulders or rock blocks encountered. The plan should provide details of proposed methods and procedures for excavating the tunnels, hauling and disposing of muck, ventilation, and illumination.

ii. Manufacturer's literature describing the tunneling system including the tunneling and all ancillary equipment. Provide model number, shield and machine controls, shield dimensions and cut diameter, specifications, and operating procedures. Provide descriptions of projects on which this system has been successfully used, including names, addresses, and telephone numbers of owner's representatives for these projects as well as length, diameter, and pipe material used and the encountered ground condition. If a used or refurbished tunnel machine is proposed, submit manufacture's refurbishment certificate and list previous usage, modifications made and dates of modifications, and detailed description of the extent and dates of refurbishment.

iii. Shop drawings showing propulsion system, safety systems, steering provisions, provisions for ground improvement, arrangement of the cutting tools, muck removal system and trailing components including muck conveyors. Include a description of how the methods to be used to maintain face pressure. Also include description of procedures for ensuring the support of the tunnel face if tunneling operations are interrupted.

iv. Hoisting plant (crane) for placement of tunnel, jacking equipment and pipe, and for muck removal.

v. Submit samples of automated tunneling records to be provided during tunneling. Samples must include electronic data and any necessary programs to interpret data, and the manual logs or records to be used.

vi. Maintenance procedures and a list of spare parts to be maintained onsite.

vii. Description of procedures for tunnel machine demobilization and removal from the tunnel.

viii. Description of the alignment control systems including manufacturer's literature and drawings showing setup, support provisions, and other details for the laser guidance system. Submit a description of surveying methods to be

used to set laser guidance system positions and a description of procedures to check and reset or realign guidance system during construction. Confirm that these systems can achieve the required pipeline line and grade within the specified tolerances.

ix. Details of spoil handling, transport, and disposal equipment and procedures including details of spoil additives, and the location of permanent spoil disposal sites. Confirm that spoils must be contained at all times and should not be stockpiled or dumped on site. Provide manufacturers description for any spoil additives and Material Safety Data Sheets (MSDS's). Provide written documentation from the disposal site(s) indicating that they will accept the spoil and are in compliance with applicable regulations.

b. Tunneling sequence plan.

c. Bulkhead placement and removal.

d. Details of the lubrication system and description of pipe lubricants to be used during pipe jacking.

e. Shaft Layout Drawings: The contractor must submit shaft layout drawings detailing dimensions and locations of all equipment, including overall work area boundaries. Layout drawings will be required for tunnel launch and retrieval locations and must be to scale, or show correct dimensions. The contractor's layout drawings must show that all equipment and operations must be completely contained within the allowable work areas shown on the drawings.

f. Safety Plan: The contractor must prepare a Safety Plan for the tunneling operations. The plan must be project-specific and must include air monitoring equipment and procedures, and provisions for lighting, ventilation, and electrical system safeguards. Plan must include incident response and tunnel/shaft rescue plan; hazard recognition; site safety analysis; tunnel and shaft access; flooding controls; and fire and explosion prevention. Plan must also address ground support, communication, handling of materials and equipment, pressurized fluids and noise.

g. Contingency Plans: The following list includes problem scenarios that may be encountered during the tunneling operations. The contractor must submit contingency plans for dealing with each problem scenario while satisfying the Specifications. These plans must include the observations and measurements required to clearly identify the cause of the problems.

i. Tunnel machine unable to advance: Possible obstructions (including boulders, rock blocks, old foundations, metallic debris, or reinforced concrete).

ii. Cutter head or face support problems.

iii. Loss of cutter tools during tunnel drive.

iv. Strong hydrocarbon smell detected in the spoils or in the shaft.

v. Laser distorted by heat, humidity, or physical disturbance.

vi. Ground heave, settlement and/or subsidence.

vii. Steering difficulties resulting in line and grade tolerances being exceeded.

viii. Loss of control, or inability to monitor position, thrust, or other performance parameters.

ix. Inflow of large volumes of water, threatening face stability.

**C.1.4 Information Submittals**

**Prior to Each Tunnel Drive:** Submit the results and field notes of line and grade survey to the engineer at least 24 hours prior to the start of each drive to ensure that the thrust block, jacking frame, guide rails, entry and exit eyes are installed properly.

**Tunnel Daily Records:** Submit the following daily records to the engineer by noon on the day following the shift for which the data or records were taken.

a. Tunneling Records: The contractor must provide complete tunneling records to the engineer. These records must include, at a minimum: date, time, name of operator, tunnel drive identification, installed ground support element number and corresponding tunnel length, rate of advance, jacking forces, excavated muck rates and volumes, total muck volume to date, changed face conditions encountered, lubrications, steering jack positions, line and grade offsets, any movement of the guidance system, shield inclination and roll, problems encountered with the tunnel machine or other components or equipment, and durations and reasons for delays. Computer-recorded data if used should be referenced to time and distance and should be recorded at time intervals of 1 minute. Manually recorded observations should be made at intervals of not less than once per ground support element, as conditions change, and as directed by the engineer.

b. Survey Measurements: Survey measurements of tunnel alignment and all surface and subsurface settlement monitoring points.

**C.2 As-built Plans**

Submit as-built plans of open cut and/or excavated tunnels and installed pipelines.

**C.3 Acceptance**

The engineer will evaluate the Submittals for Approval with the requirements of this special provision. Within 14 calendar days after receipt of the Submittals for Approval, the engineer will notify the contractor of the acceptance of the submittal, or if additional information and/or changes are required. Any unacceptable part of the Submittals for Approval will require resubmission. The contractor must resubmit the Submittals for Approval for evaluation and review with the necessary changes or additional information

provided. The engineer will provide a written notice of acceptance or rejection of contractor's resubmitted Submittals for Approval within 14 calendar days after its receipt.

After the engineer's acceptance of Submittals for Approval, no changes to the Submittals for Approval can be made without written consent of the engineer.

All Informational Submittals should be submitted to the engineer. The engineer can reject the submittals which do not have adequate detail, as required herein. The contractor must resubmit the rejected submittals within 7 days upon the receipt of the engineer's rejection notice.

**C.4 Excavation**
Contractor may elect to utilize an open cut and/or tunnel excavation method of constructing Storm Sewer between manholes Z2431, Z2623 and Z2683 or any segments within thereof. The department will not accept or approve any cost reduction incentive for open cut method of constructing Storm Sewer Construction.

**C.4.1 Open Cut Excavation**
Use construction methods conforming to standard spec 607.3.

Conform to all ramp closures and openings as specified elsewhere in this special provision and as shown on the plan.

No separate payment will be made for open cut construction method for Storm Sewer Construction including: pipe, manholes, sheeting, slope stabilization, dewatering, pumping, temporary concrete barrier, furnishing bedding and backfill, traffic control, or erosion control; for protecting and supporting utilities including WE/ATC towers; for boulder removal; for construction personnel access; for construction equipment access; for construction area restoration; for any additional materials, labor, equipment, tools, handling or transporting of materials; for disposing additional spoils; for any additional equipment mobilization/demobilization; or for any other necessary incidental items to complete any open cut portion of the work.

**C.4.2 Tunnel Excavation**
Construct pipeline by one-pass tunneling methods that provide jacked reinforced concrete pipe, or other type of lining as permitted by the engineer, subject to the restrictions on methods stated elsewhere in this special provision. The acceptable tunneling method must be tunnel excavation by a slurry shield MTBM. Blasting is not permitted anywhere on the Project.

The contractor must complete tunnel excavation by the tunnel machine in accordance to approved Submittals and all applicable permit conditions, and provide all temporary electrical, water, telephone, and other facilities required to complete the tunnel. Detailed construction sequencing must be the responsibility of contractor, consistent with the requirements of this special provision.

The contractor's selection of means and methods for excavation is integral to the planning and execution of the work of the project as specified. The selection of means and methods is the responsibility of the contractor and the selected means and methods must be capable of coping with subsurface conditions encountered. Excavation must include removal of excavated material from tunnel face and transporting to the ground surface. Loading, conveying, dumping, and disposal of excavated materials from the shafts and tunnel off the construction site must be as specified herein.

Begin Tunnel excavation by the tunnel machine after the following tasks are completed:

a. All required submittals have been provided, reviewed, and approved.
b. Shaft excavation, stabilization and shoring have been satisfactorily completed in accordance to special provisions, article Shaft Excavation Support System.
c. Groundwater control has been implemented as per special provisions, article Control of Water.
d. Survey control has been established for the tunnel.
e. All required geotechnical instrumentation has been properly installed and baseline readings taken, as per special provisions, article Geotechnical Instrumentation.
f. A startup inspection of all mechanical and hydraulic systems associated with the tunneling operations has been completed. The system must be tested on the surface to ensure that the machine and supporting equipment is functioning properly. The engineer must be notified at least 72 hours prior to the start-up inspection and will be present during the start-up inspection. Key machine performance data must be measured and recorded by the contractor during this inspection, including face support components, functionality of main and steering jacks, laser and target, and other components. The records of the start-up inspection must be submitted to the engineer within 24 hours of the completed inspection.
g. Site safety representative has prepared a code of safe practices and an emergency plan in accordance to OSHA, the Owner's Controlled Insurance Program (OCIP), and other applicable requirements. Provide the engineer with a copy of each prior to starting tunneling. Hold safety meetings and provide safety instruction for new employees as required by OSHA and OCIP. Conduct a preconstruction safety conference in accordance to OSHA requirements. Arrange this conference and inform the engineer of the time and place of the conference at least 7 days in advance.

   Perform tunnel excavation in a manner that will minimize the movement of the ground in front of and surrounding the excavation, and minimize subsidence of the surface, structures, and utilities above and in the vicinity of the excavation. Support the ground in a manner to prevent loss of ground and keep the perimeters and faces of the tunnel, passages, and bottoms of work shafts stable. Support the face of the excavation during all shut down periods.

Excavation must be to the lines, grades, and dimensions shown on the plans and shop drawings. Excavation must not extend beyond the theoretical excavation line shown on the shop drawings. Methods must be used and precautions must be taken to minimize removal, loosening, and raveling of material beyond the minimum excavation necessary to satisfy all criteria. The contractor must provide means to accurately measure the quantity of ground removed from the tunnel. After each tunnel drive, fill the annular space outside the pipe with grout as per special provisions, article Contact Grouting.

Do not advance the tunnel machine at any time when the tunnel guidance system is out of order. Validate line and grade continually with survey control by the qualified surveyor. Line and grade must be validated at the frequency no less than once per installation of each pipe segment. The tunnel horizontal and vertical tolerances must be plus-or-minus 1 inch. When a variation from specified line or grade occurs, immediately take action to return the excavation within the specified design line and grade.

Completely contain, transport, and dispose of all excavated materials and additives away from the construction site. Space for stockpiling is limited and may not be available at the work site. All spoils must be contained in trucks, tanks, or other containers at all times. Dumping of spoil on the ground, discharge into sewers or ditches, or discharge into the shafts is not permitted. Only use the disposal sites identified in approved submittals for muck and spoil disposal.

Spare parts must be available for delivery to the site within 5 days in the event that replacement is necessary.

When the boulders cannot be split or broken by the cutterhead into a size that can be ingested through muck handling system, the contractor must be prepared to provide other methods of removing the boulders.

At the end of each tunnel drive, the contractor must examine the wear-and-tear condition of each cutting tools equipped on the cutterhead. The contractor must promptly change the damage and severely worn cutter tool at the end of each tunnel drive to prevent changing cutter tools during the subsequent tunnel drive.

**C.4.2.1 Pipe Jacking**

The contractor must follow the direction of Pipe Jacking between the shafts as recommended in the Geotechnical Baseline Report. The contractor must minimize loss of lubricant, or soil into the shaft at the pipe penetration.

Set the pipe to be jacked on properly braced and supported pipe guide rails. The axial forces from the thrust jacks must be distributed to the pipe uniformly through cushion material to prevent damage to the ends of the pipe. Control the advance rate and the volume of material excavated to avoid over-excavation and heave.

The main jack and intermediate jacking station(s) if used, must have jacking capacity at least 50% greater than the anticipated jacking force. Control jacking pressures so as not to exceed the maximum jacking pressure of pipe. The contractor must install intermediate jacking station(s) as needed to prevent damage to the pipe and jacking/thrust block system and to prevent the tunnel machine and pipe string from becoming stuck due to side friction.

Intermediate jacking stations must be of the type that allows jacks to be removed and the pipe to be fully closed within the casing of the intermediate jacking system. Casing for intermediate jacking stations must be equipped with seals to prevent soil and lubrication intrusion into the tunnel. Casing for intermediate jacking stations must provide corrosion protection that is at least equal to that provided by the pipe. The outside diameter of the intermediate jacking station must be as close as possible to pipe diameter but less than the tunnel machine.

Each pipe section must be jacked as the excavation progresses in such a way that leaves no length of tunnel exposed at any time. Use anti-reverse thrust restraints to prevent pipe movement into launching shaft when jacking retracts for placement of a new section of pipe.

Pipes must be jacked into place without damaging the pipe. In the event a section of pipe is damaged during the jacking operation, the pipe must be jacked through to the receiving shaft and removed. Other methods of repairing the damaged pipe may be used, subject to approval by the engineer.

The thrust block at the launching shaft must be properly designed and constructed to provide a minimum factor of safety of 1.5 against the maximum possible thrust by the main jacks. The thrust block must be aligned with the proposed pipe alignment and must be designed to withstand the maximum allowable jacking pressure to be used, without excessive deflection or displacement.

**C.4.2.2 Lubrication**

Apply lubrication to the external surface of the pipe to reduce skin friction and the annular space created by the overcut must be filled with a lubricant suitable for the particular soil conditions to be tunneled.

Provide a lubrication system to inject an approved lubricant at the rear of the tunnel machine and as required along the pipe length to lower the friction developed on the sides of the pipe during jacking. The lubrication system must be such that it can automatically be controlled from the operator's cabin and controlled volumes of lubricant can be injected by the operator at selected locations along the tunnel. Such volumes of lubricant pumped, including the location of injection, must also be automatically recorded.

Monitor at all times the volumes, pressures, and location of grout/lubrication injection points to ensure that the annulus around the pipe is completely filled with approved lubricant.

### C.4.2.3 Air Quality

Perform all shaft and tunnel excavation operations by methods and with equipment which will reduce or eliminate any dust, fumes, vapors, gases, fibers, fogs, mists or other atmospheric impurities. Conform to regulations promulgated by OSHA and other regulatory authorities regarding air quality and ventilation in excavations. Provide appropriate instruments for testing the quality of the tunnel atmosphere and take samples under working conditions, all in accordance to OSHA, State of Wisconsin, or other jurisdictional requirements.

Continuous gas monitoring must be conducted at all times whenever personnel are underground.

Air testing must be required for the specific conditions to ensure the gas concentration requirements as per OSHA 29 CFR 1926.55 are met.

### C.4.2.4 Tunnel Ventilations

As a minimum, when the excavations are occupied by workmen, the main ventilation system should deliver fresh air to the face at a volumetric flow rate equal to 60 feet per minute times the full area of the excavated face. A higher volumetric flow rate should be provided if necessary to conform to OSHA requirements. Operate the tunnel main ventilation system 24 hours per day, 7 days per week, continuously, until hole-through. During extended periods of inactivity when excavations are unoccupied, such as over weekends or holidays, the volumetric flow rate may be reduced to the OSHA minimums.

### C.4.2.5 Tunnel and Shaft Illumination

Light in all areas where work is in progress must be adequate to permit proper observation of operations by the contractor and the engineer at all times. Lighting intensity must be as required by applicable regulations for tunnel and shaft construction operations. Lighting intensity must be increased as required by the engineer for concrete placement and inspection and for final cleanup.

Open flame lights must not be used. Flashlights must be explosion-proof. Both power and lighting circuits must be separated and thoroughly insulated. The voltage must not exceed 115 volts. All lights must be placed in porcelain light fixtures in vapor tight enclosures and metal guards. Lighting installation must conform to National Electric Code NFPA 70.

Maintain underground illumination in place throughout the life of the Contract including the substantial completion inspection or until permission to remove illumination is received in writing from the engineer.

### C.4.2.6 Emergency Measures

Whenever there is a condition which is likely to endanger the stability of the excavation or adjacent structures, the contractor must operate with a full crew for 24 hours a day including weekends and holidays without intermission until those conditions no longer jeopardize the stability of the work and adjacent facilities.

Emergency electric power supply must be provided by the contractor and must be independent of the primary electric supply. The emergency power system must be capable of powering the excavation lighting, ventilation and water control systems and, if used, the low pressure compressed air system.

**C.5 Cleanup**
After completion of tunneling and pipeline installation, all construction debris, spoils, oil, grease, and other materials will be removed from the open cut and/or tunneled pipe, launch and retrieval shafts, and all contractor work areas. Cleaning must be incidental to the construction. No separate payment must be made for cleanup.

**D Measurement**
The department will measure Intermediate Jacking Station as each individual unit, acceptably completed. The contractor must refer to the bid table for the quantity of bidding purpose.

The department will measure Storm Sewer Construction by the linear foot acceptably completed. Longer pipe and additional excavation beyond the limits of the plan dimensions will not be measured for payment unless authorized and agreed to in advance of placement by the department.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.8099 | Intermediate Jacking Station | Each |
| SPV.0090.8096 | Storm Sewer Construction | LF |

Payment for Storm Sewer Construction is full compensation for completing open cut and/or tunnel work, including, but not limited to, tunneling, boulder removal (which do not impede the defined normal forward progress of the tunnel machine), concrete pipe size and class as specified in the plan with delivery and jacked pipe installation, lubrication, contact grouting, manholes, sheeting, slope stabilization, dewatering, pumping, temporary concrete barrier, furnishing and compacting bedding and backfill, traffic control, or erosion control; for protecting and supporting utilities including WE/ATC towers; for construction personnel access; for construction equipment access; for construction area restoration; documentation, all materials, labors, equipment's, tools, handling, transporting, disposing spoils, equipment mobilization/demobilization, and all other necessary incidental items as specified in this special provision.

Payment for Intermediate Jacking Stations is full compensation for actual used quantities per required condition specified herein.

## 301. Storm Sewer Structure Z4235, Item SPV.0060.8502; Structure Z4121, Item SPV.0060.8503; Structure Z4192, Item SPV.0060.8504; Structure Z4133, Item SPV.0060.8505.

**A Description**

This work shall consist of design and construction of either a cast-in-place or precast storm sewer structure made of concrete with necessary reinforcement, metal frames, grates and lids, including required excavating and backfilling.

**B Materials**

Conform to standard spec 611.2.

**C Construction**

Conform to standard spec 611.3.

**D Measurement**

The department will measure Storm Sewer Structure (type) by each individual unit, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.8502 | Storm Sewer Structure Z4235 | Each |
| SPV.0060.8503 | Storm Sewer Structure Z4121 | Each |
| SPV.0060.8504 | Storm Sewer Structure Z4192 | Each |
| SPV.0060.8505 | Storm Sewer Structure Z4133 | Each |

Payment is full compensation for providing structure design; providing all materials, including all masonry, for Grade "A" concrete adjustments and monolithic concrete shimming; conduit and sewer connections, steps, and other fittings; for providing and installing butyl rubber joints; for furnishing all excavating, backfilling, disposing of surplus material, and for cleaning out and restoring the work site; except that the department will pay for covers, including frames, grates and lids separately.

The department will apply contract unit prices without adjustments to the quantities of manholes constructed to depths not greater than one foot above or below the elevations shown on the plans. Manholes that the engineer orders constructed to a depth greater than one foot above or below elevations shown on the plans will be specified for extra work and paid for in accordance to 109.4.

## 302. Pavement Cleanup Project 1060-33-81, Item SPV.0075.0002; Project 1060-34-82, Item SPV.0075.0003.

### A Description

This special provision describes cleanup of dust and debris from pavements within and adjacent to the job site. Pavement Cleanup includes surveillance and reporting of all active haul routes.

### B Materials

#### B.1 Pavement Cleanup

Furnish a vacuum-type street sweeper equipped with a power broom, water spray system, and a vacuum collection system.

Utilize vacuum equipment with a self-contained particulate collector capable of preventing discharge from the collection bin into the atmosphere.

Use a vacuum-type sweeper as the primary sweeper, except as specified herein or approved by the engineer.

### C Construction

#### C.1 Surveillance

Provide daily surveillance of active haul routes to identify if material is being tracked from the jobsite. Document the condition of the roads and if they needed to be swept in a daily report. Submit reports to the engineer daily, including hourly metered tickets for that day's sweeping activities. Clean up spillage and material tracked to/from the project within an hour of occurrence or as directed by the engineer. Perform cleanup operations in a safe manner.

#### C.2 Pavement Cleanup

Keep all pavements, curb lanes and gutters both closed and open to public traffic within the job-site boundaries free of dust and debris generated from any activity under the contract. Keep all pavements, curb lanes and gutters adjacent to the project free of dust and debris that are affected by land disturbing, dust generating activities, as defined in the contractor's dust control implementation plan.

Provide routine sweeping of all pavements, curb lanes and gutters on local street active haul routes a minimum of once a day as defined in the Dust Control Implementation Plan (DCIP) or as directed by the engineer. Include the following roadways for routine sweeping:

- W. Greenfield Avenue (STH 100 to S. 84th Street)
- W. Schlinger Avenue (S. 100th Street to S. 84th Street)
- W. National Avenue (STH 100 to S. 84th Street)
- W. Oklahoma Avenue (STH 100 to S. 84th Street)
- W. Adler Street (S. 95th Street to S. 84th Street)
- W. Kearney Street (S. 84th Street to S. 68th Street)
- W. Chester Street (S. 94th Place to S. 89th Street)

- W. O'Connor Street (S. 84th Street to S. 68th Street)
- W. Fairview Avenue (Oak Leaf Trail to N. 121st Street)
- W. Bluemound Road (N. 121st Street to S. 68th Street)
- W. Wisconsin Avenue (STH 100 to N. 84th Street)
- W. Watertown Plank Road (STH 100 to USH 45 northbound Exit Ramp)
- Oak Leaf Trail (IH 94 to W. Fairview Avenue)
- N. 121st Street (IH 94 to W. Bluemound Road)
- Colder's Service Road (STH 100 to Hank Aaron State Trail)
- STH 100 (W. Greenfield Avenue to W. Watertown Plank Road)
- N. 97th Street (W. Bluemound Road to W. Wisconsin Avenue)
- N. 95th Street (W. Bluemound Road to W. Wisconsin Avenue)
- S. 94th Place (W. Schlinger Avenue to Hank Aaron State Trail)
- S. 92nd Street (W. Schlinger Avenue to W. Bluemound Road)
- S. 84th Street (W. Greenfield Avenue to W. Wisconsin Avenue)
- S. 76th Street (W. Kearney Street to W. Bluemound Road)
- S. 70th Street (W. Kearney Street to W. O'Connor Street)
- S. 68th Street (W. Kearney Street to W. Bluemound Road)
- And any other roadways approved by the department

In addition to routine sweeping, conduct sweepings as the engineer directs or approves, to deal with dust problems that might arise during off-work hours or emergencies. Provide the engineer with a contact person available at all times to respond to requests for emergency sweeping. Respond to emergency sweeping requests within 4 hours of notice.

**D Measurement**

The department will measure Pavement Cleanup (Project) by the hour acceptably completed.

Tickets shall include date, company, operator name, equipment make/model, routes swept, and total hours. Total hours shall be to the nearest 0.25 hour that work under this item was performed.

Compensation for mobilizing equipment shall be included in the contract price for Pavement Cleanup and no additional compensation therefore will be allowed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0075.0002 | Pavement Cleanup Project 1060-33-81 | HR |
| SPV.0075.0003 | Pavement Cleanup Project 1060-34-82 | HR |

Payment is full compensation for daily surveillance; preparing and submitting the daily surveillance report with hourly metered tickets; mobilization; sweeping; and disposing of materials.

# 303. Obstructions Trenchless Utility Construction, Item SPV.0075.0010.

## A Description

### A.1 General

This special provision describes removing, drilling, or coring through or otherwise clearing natural deposits and man-made subsurface obstructions when encountered during jacking, boring, or auguring procedures for trenchless utility construction.

### A.2 Definitions

For excavation by jacking, boring, auguring, or trenchless methods, subsurface obstructions are defined as any objects, known/identified or unknown/unidentified man-made or naturally deposited that are encountered during jacking, boring or auguring operations for utility construction that prohibit advancement of the equipment.

Surface obstructions are defined as any objects, man-made or naturally deposited, encountered within 6 feet of the ground surface. Subsurface obstructions are defined as any obstructions that are encountered by the equipment at a depth greater than 6 feet below the ground surface.

Known obstructions are man-made obstructions that are shown or identified in the plans include materials, such as old concrete foundations or abandoned utilities. Unknown obstructions are man-made obstructions that are not shown or identified in the plans. Unknown/unidentified naturally deposited obstructions are naturally occurring deposits such as rock, boulders, cobbles, nested cobbles and nested boulders greater than an average size of 12-inches. Unknown/unidentified naturally deposited obstructions less than an average size of 12-inches are not considered obstructions and therefore will be considered to be included in the appropriate bid item and are not applicable to the provision of this pay item.

## B (Vacant)

## C Construction

### C.1 Submittals

For excavation by jacking, boring, auguring or trenchless methods, submit contingency plan describing methods, equipment, and procedures to be used to clear obstructions.

### C.2 Obstruction Removal:

Remove surface and subsurface obstructions at selected locations for construction. Use special tools and/or procedures when the contractor cannot advance the hole more than 12 inches in 60 minutes using conventional methods at maximum power, torque, and thrust. Other methods for obstruction removal can be employed to aid in the removal if acceptable to the engineer. Blasting is not permitted.

When a subsurface obstruction is encountered, notify the engineer in writing prior to beginning any work to remove the obstruction. Upon engineer acceptance of the notification, the contractor shall begin work in accordance to the submitted and approved

contingency plan to remove, treat, clear or otherwise make it possible for the jacking, boring, or auguring operation to advance past the obstruction(s) that impede forward progress.

If the contractor has exhausted all means of clearing the obstruction using methods delineated in the approved contingency plan, the contractor shall submit a revised plan to remove the obstruction, hereinafter referred to as the "correction plan". Upon engineer acceptance of the correction plan, the contractor shall continue work in accordance to the correction plan, to remove, treat, clear or otherwise make it possible for the trenchless technology operation to advance past the obstruction.

**D Measurement**

The department will measure Obstructions Trenchless Utility Construction by the hour for each hour the contractor actively spends removing, coring or clearing natural deposits and man-made subsurface obstructions. A quantity of one hour will be paid upon determination that an obstruction is encountered that prevents forward progress.

Upon removal of the unknown man-made subsurface obstruction, portions of the final hour measured will be rounded up to the next whole hour. Down time spent planning for subsurface obstruction removal, time to develop a correction plan, or delays caused by the mobilization of special equipment and tools not readily available at the site will not be measured for payment.

| **Measurement Example** | | **Paid Obstruction Hours** |
|---|---|---|
| 1 | Equipment encounters possible obstruction. Contractor notifies engineer. Start clock. | 0.00 |
| 2 | Equipment does not advance 12-inches after attempting to do so for at least 60 minutes. | 1.00 |
| 3 | Contractor resumes work clearing obstruction the following day. Assume the obstruction is cleared in aggregate total of 1 hours and 15 minutes of time. Obstruction is identified to be a previously unknown and unidentified man-made obstruction. | 2.00 |

Only man-made subsurface obstructions and natural deposits (rock, boulders, cobbles, nested cobbles and nested boulders) greater than an average size of 12-inches in 60 minutes will be measured for payment. Work to clear and remove surface obstructions and any natural deposits (rock, boulders, cobbles, nested cobbles and nested boulders) will not be measured separately for payment and shall be included in the applicable bid item.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0075.0010 | Obstructions Trenchless Utility Construction | HRS |

Payment for Obstructions Trenchless Utility Construction is full compensation for removal of man-made and/or natural deposit obstructions; and for furnishing all materials, labor, equipment, additional concrete, and incidentals necessary to complete the work.

## 304. Obstructions Drilled Foundation Shaft, Item SPV.0075.4200; Wall Secant Pile, Item SPV.0075.4205; Foundation Drilling, Item SPV.075.4210; Sign Supports Concrete Masonry, Item SPV.0075.4215.

### A Description

### A.1 General

The work included herein consists of removing, drilling, or coring through unknown, and unidentified, man-made subsurface obstructions when encountered for construction of drilled foundation shafts, drilled shafts for secant pile retaining walls, foundation drilling for solider pile retaining walls or drilling for concrete masonry sign supports.

### A.2 Definitions

Surface obstructions are defined as any objects, man-made or naturally deposited, encountered within 6 feet of the ground surface. Subsurface obstructions are defined as man-made obstructions that are encountered by the drilling equipment at a depth greater than 6 feet below the ground surface. Obstructions include only man-made materials, such as old concrete foundations or abandoned utilities. Known obstructions are man-made obstructions that are shown or identified in the plans. Unknown obstructions are man-made obstructions that are not shown or identified in the plans. Naturally occurring deposits such as rock, boulders, cobbles, nested cobbles and nested boulders, are not considered obstructions and therefore are not applicable to the provision of this pay item.

### B (Vacant)

### C Construction

Remove surface and subsurface obstructions at drilled shaft locations. For drilled foundation shafts, wall secant pile shafts and foundation drilling, use special tools and/or procedures when the contractor cannot advance the hole more than 12 inches in 60 minutes using conventional rock augers fitted with teeth, drilling buckets, or under reaming tools operating at maximum power, torque, and down thrust. For drilling associated with the construction of sign supports, use special tools and/or procedures when the contractor cannot advance the hole more than 12 inches in 60 minutes using conventional earth augers operating at maximum power, torque, and down thrust. Special procedures and/or tools may be required but are not limited to chisels, breakers, core barrels, air hammer tools, and hand excavation. Other methods for obstruction removal can be employed to aid in the removal if acceptable to the engineer. Blasting is not permitted.

When an unknown subsurface obstruction is encountered, notify the engineer prior to beginning any work to remove the obstruction.

**D Measurement**

The department will measure Obstructions (Type) by the hour for each hour the contractor actively spends removing or coring through unknown man-made subsurface obstructions. A quantity of one hour will be paid upon the determination that a subsurface obstruction is encountered based on lack of hole advancement with conventional tools as set forth in this specification. Upon removal of the unknown man-made subsurface obstruction, portions of the final hour measured will be rounded up to the next whole hour. Down time spent planning for subsurface obstruction removal or delays caused by the mobilization of special equipment and tools not readily available at the site will not be measured for payment.

| Measurement Example | | Paid Obstruction Hours |
|---|---|---|
| 1 | Drilling encounters possible obstruction. Contractor notifies engineer. Start clock. | 0.00 |
| 2 | Conventional drilling equipment does not advance 12 inches after attempting to do so for at least 60 minutes. | 1.00 |
| 3 | Contractor resumes work clearing obstruction the following day. Assume the obstruction is cleared in aggregate total of 1 hour and 15 minutes of time. Obstruction is identified to be a previously unknown and unidentified man-made obstruction. | 2.00 |

Only unknown (not identified in the plans), man-made subsurface obstructions, will be measured for payment. Work to clear and remove surface obstructions, known obstructions identified on the plans, and any natural deposits (rock, boulders, cobbles, nested cobbles and nested boulders) will not be measured separately for payment and shall be included in the applicable items for Drilled Shaft Foundation 98.43-Inch or 78.74-Inch, Wall Secant Pile 47.24-Inch, Foundation Drilling, or Sign Supports Concrete Masonry.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0075.4200 | Obstructions Drilled Foundation Shaft | HRS |
| SPV.0075.4205 | Obstructions Wall Secant Pile | HRS |
| SPV.0075.4210 | Obstructions Foundation Drilling | HRS |
| SPV.0075.4215 | Obstructions Sign Supports Concrete Masonry | HRS |

Payment is full compensation for removal and disposal of unknown, man-made subsurface obstructions; and for furnishing all materials, labor, equipment, additional concrete, and incidentals necessary to complete the work.

## 305. Obstructions Tunnel Excavation, Item SPV.0075.8097.

### A Description

### A.1 General

This special provision describes removing, drilling, or coring through or otherwise clearing boulders and known/identified or unknown/unidentified man-made subsurface obstructions when encountered during tunnel excavation by MTBM for construction of storm sewer.

### A.2 Definitions

Natural boulders and man-made obstructions defined as per the specified conditions described in the Geotechnical Baseline Report. Unknown/unidentified obstructions are man-made obstructions that are not shown or identified in the plans or Geotechnical Baseline Report.

### B (Vacant)

### C Construction

### C.1 Submittals

Submit tunnel work plan including contingency plan and proposed details of methods and equipment to be used to clear obstructions as specified in special provisions, article Tunnel Excavation.

**C.2 Obstruction Removal:** Should the tunneling operations encounter an obstruction that impedes the forward progress of the tunnel machine, the contractor shall notify the engineer in writing within three hours after encountering an obstruction. Upon engineer acceptance of the notification, the contractor shall begin work in accordance to the submitted and approved contingency plan, to remove, treat, clear or otherwise make it possible for the tunnel machine to advance past the obstruction(s) that impede forward progress of the machine.

If the contractor has exhausted all means of clearing the obstruction using methods and equipment delineated in the submitted contingency plan, the contractor shall submit a revised plan to remove the obstruction, hereinafter referred to as the "correction plan". Upon engineer acceptance of the correction plan, the contractor shall continue work in accordance to the correction plan, to remove, treat, clear or otherwise make it possible for the tunnel machine to advance past the obstructions that impede forward progress of the machine.

### D Measurement

The department will measure Obstructions Tunnel Excavation by the hour for each hour the contractor actively spends removing or clearing boulders and known/identified or unknown/unidentified man-made subsurface obstructions. A quantity of one hour will be paid upon the determination that an obstruction is encountered based on forward progress of tunnel excavation by cutterhead slower than defined in the Geotechnical Baseline Report. Objects that do not impact the tunneling progress defined in the Geotechnical

Baseline Report will not be considered payable obstructions. Upon removal of the obstruction, portions of the final hour measured will be rounded up to the next whole hour. Down time spent planning for subsurface obstruction removal, time to develop a correction plan, or delays caused by the mobilization of special equipment and tools not readily available at the site will not be measured for payment.

| Measurement Example | | Paid Obstruction Hours |
|---|---|---|
| 1 | Tunnel excavation machine encounters possible obstruction. Contractor notifies engineer. Start clock. | 0.00* |
| 2 | Tunnel excavation machine does not advance more than 30% of normal forward progress for at least 60 minutes using a MTBM cutter head. | 1.00* |
| 3 | Contractor resumes work clearing obstruction the following day. Assume the obstruction is cleared in aggregate total of 6 hours and 30 minutes of time. Obstruction is identified to be a previously unknown and unidentified man-made obstruction. | 7.00* |

*The shown quantity is for example only, not an actual quantity. Quantities are shown in the bid table.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0075.8097 | Obstructions Tunnel Excavation | HRS |

Payment for Obstructions Tunnel Excavation is full compensation for removal of man-made or boulder obstructions through the tunnel face as described in the Geotechnical Baseline Report; and for furnishing all materials, labor, equipment, additional concrete, and incidentals necessary to complete the work.

## 306. Ice HPC Hot Weather Concreting, Item SPV.0085.0900.

**A Description**

This work consists of furnishing ice for use in HPC Masonry Structures concrete mixes to meet the concrete surface evaporation rate and mix temperature requirements specified for hot weather concreting in the contract special provision item HPC Masonry Structures.

**B Materials**

Water used to produce ice shall meet the requirements of standard spec 501.2.4.

**C Construction**
To meet the concrete surface moisture evaporation rate and mix temperature requirements specified in standard spec 501.3.8.2 as modified in the contract special provision article HPC Masonry Structures, the contractor may elect to use ice or be directed by the engineer to use ice in concrete mixes for the item HPC Masonry Structures.

**D Measurement**
The department will measure Ice HPC Hot Weather Concreting by the pound, acceptably completed.

**E Payment**
The department will pay for measured quantities at the specified contract unit price of $0.75 per pound under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0085.0900 | Ice HPC Hot Weather Concreting | LB |

Payment is full compensation for supplying and adding ice to concrete mixes for the item HPC Masonry Structures as specified herein.

For the item Ice HPC Hot Weather Concreting, the department will pay $0.75 per pound for the quantity of ice required to meet concrete surface evaporation rate or concrete mix temperature limits specified in the contract for the item HPC Masonry Structures.

## 307. Post-Tensioning Integral Pier Cap, Item SPV.0085.4310.

**A Description**
The work under this section shall consist of furnishing, installing, post-tensioning, and grouting of post-tensioning tendons in accordance to the details shown on the plans, standard spec 503, and these Special Provisions.

Post-tensioned concrete members consist of the furnishing, installing, stressing, and grouting of prestressing tendons. In this process prestressing steel, which may be strands, wires, or bars, is installed through preformed voids or ducts in the concrete, is stressed up to a predetermined load, and is anchored directly against the hardened concrete, initially imparting stresses through end bearing. Grout is then injected into the ducts to completely fill all remaining voids and to seal the permanently stressed tendons.

**A.1 Terms Used**
**Post-Tensioning:** The application of a compressive force to the concrete by stressing tendons or bars after the concrete has been cast and cured. The force in the stressed tendons or bars is transferred to the concrete by means of anchorages.

**Post-Tensioning Scheme or Layout:** The pattern, size, and locations of post-tensioning tendons provided by the designer on the Contract Plans.

**Post-Tensioning System:** A proprietary system where the necessary hardware (anchorages, wedges, strands, bars, couplers, etc.) is supplied by a particular manufacturer or manufacturers of post-tensioning components.

**Tendon:** A high strength steel member made up of a number of strands, wires or bars.

**Strand:** An assembly of several high strength steel wires wound together. Strands usually have six outer wires helically wound around a single straight wire of a similar diameter.

**Wire:** A single, small diameter, high strength steel member and normally the basic component of strand, although some proprietary post-tensioning systems are made up of individual or groups of single wires.

**Bar:** Post-tensioning bars are high strength steel bars, normally available from 0.625 to 2.5 inches (15 mm to 64 mm) dia. and usually threaded with very coarse thread.

**Coupling:** The means by which the prestressing force may be transmitted from one partial - length prestressing tendon to another.

**Anchorage:** An assembly of various hardware components, which secure a tendon at its ends after it has been stressed and imparts the tendon force into the concrete.

**Anchor Plate:** That part of the anchorage, which bears directly on the concrete and through, which the tendon force is transmitted.

**Wedges:** A small conically shaped steel component placed around a strand to grip and secure it by wedge action in a tapered hole through a wedge plate.

**Wedge Plate:** A circular steel component of the anchorage containing a number of tapered holes through which the strands pass and are secured by conical wedges.

**Set (Also Anchor Set or Wedge Set):** Set is the total movement of a point on the strand just behind the anchoring wedges during load transfer from the jack to the permanent anchorages. Set movement is the sum of slippage of the wedges with respect to the anchorage head and the elastic deformation of the anchor components. For bars, set is the total movement of a point on the bar just behind the anchor nut at transfer, and is the sum of slippage of the bar and the elastic deformation of the anchorage components.

**Anticipated Set:** Anticipated set is that set which was assumed to occur in the design calculation of the post-tensioning forces immediately after load transfer.

**Grout:** A mixture of cementitous materials and water, with or without mineral additives, admixtures or fine aggregate, proportioned to produce a material that can be pumped without segregation of the constituents; injected into the duct to fill the space around the tendon.

**Vent:** Tubing or duct, which can be used for the injection of grout to allow air, water, grout and bleed water from the duct.

**Duct:** Material forming a conduit to accommodate the tendon installation and provide an annular space for the grout which protects the steel.

**A.2 Alternate Post-Tensioning Designs**

Alternate designs using a post-tensioning scheme other than that shown on the Plans may be submitted by the contractor for the engineer's approval provided that the proposed alternate scheme fulfills the following requirements:

- The prestress system is a type described in Section A.3.
- The net compressive stress in the concrete after all losses is at least as large as that provided by the scheme shown on the Plans.
- The distribution of individual tendons at each cross section generally conforms to the distribution shown on the Plans.
- The ultimate strength of the structure with the proposed post-tensioning scheme meets the requirements of Section 5 of the AASHTO LRFD Bridge Design Specifications, current Edition including all Interim Specifications; and shall be equivalent to the ultimate strength provided by the original design.
- Stresses in the concrete and prestressing steel at all sections and at all stages of construction meet the requirements of the Design Criteria noted on the Plans.
- All provisions of the Design Criteria noted on the Plans shall be satisfied.
- The contractor fully redesigns and details, as required, the elements where the alternate post-tensioning scheme is proposed to be used.
- The contractor submits complete Shop Drawings including post-tensioning scheme and system, reinforcing steel, and concrete cover; and design calculations (including short and long term prestress losses) for the engineer's approval. These drawings and calculations shall be certified by a registered professional engineer in the State of Wisconsin who can show experience with the proposed alternate scheme to the satisfaction of the engineer.
- Any alternate post-tensioning scheme or system approved by the engineer, which results in a change in quantity from that shown on the Plans, shall be paid based on the quantity actually used and accepted or the plan quantity, whichever is less, at the unit bid price.

**A.3 Shop Drawings**

Prepare Shop Drawings for the post-tensioning system. Prepare in accordance to the following provisions as well as standard spec 105.2.

Submit checked detailed Shop Drawings, which include, but are not limited to, the following:

- A complete description of all details covering each of the post-tensioning systems to be used for permanent tendons.
- Designation of the specific post-tensioning steel, anchorage devices, sheathing material, and accessory items to be used.
- Size and type of ducts for all post-tensioning tendons and their horizontal and vertical profiles shall be clearly detailed. Duct supports and grout tubes and vents shall be shown including size, type and location.
- The details of the anchorage systems.
- A table giving jacking sequence, jacking forces and initial elongation, and estimates of anchor sets of the tendons at each stage of erection for all post-tensioning.
- Parameters to be used to calculate the typical tendon force such as expected friction coefficients, anchor set, and post-tensioning relaxation curves.
- Details and a complete description of the post-tensioning system to be used. Prestressing details shall include method, sequence, and procedure of prestressing, securing tendons, release procedures and equipment.
- Certified copies of reports covering tests performed on post-tensioning steel and anchorages devices as required by Section B.2.2 of this specification.
- Information regarding the grout mix design, the method of mixing and placing the grout and the type and capacity of equipment to be used.

**B Materials**

Furnish material that is according to the following specifications.

**B.1 Prestressing Material**

**B.1.1 Prestressing Steel**

The proper use of strand, bars and wires is predicated upon the use of suitable accessory materials. Details for the use of these materials shall be furnished by the manufacturer in connection with Shop and Working Drawing submittals.

Strand: Unless otherwise noted on the Plans, strand shall be uncoated, Grade 270 (1860 MPa), low relaxation 7-wire strand conforming to the requirements of AASHTO M 203.

**Bar:** Unless otherwise noted on the Plans, bar shall be uncoated, Grade 150 (1035 MPa), high strength, coarse thread bar conforming to the requirements of AASHTO M 275.

**B.1.2 Prestress Anchorages**

All prestressing steel shall be secured at the ends by anchoring devices meeting the approval of the engineer. The anchoring devices shall effectively distribute tendon forces to the concrete and shall satisfy the anchor efficiency test and acceptance test in accordance to Article 10.3.2 of AASHTO LRFD Construction Specifications current edition and latest interim. The anchorages shall develop at least 95 percent of the minimum specified ultimate tensile strength of the prestressing steel, tested in an unbonded state without exceeding the anticipated set. Certified copies of test results for the anchorage system of each different anchor type or size shall be supplied to the engineer at no additional cost. The anchorage shall be so arranged that the prestressing force in the tendon may be verified prior to the removal of the stressing equipment.

For single plate anchors the design shall conform to the following requirements (A and B):

- The concrete bearing stress shall not exceed the allowables specified in Section 5.10.9.3 “Design 0f the General Zone” of ASSHTO LRFD Bridge Design Specifications current edition and interims. Calculations shall be furnished to the engineer for each bearing type and/or size of anchor device supplied.

- The bending stresses in the plates or assemblies induced by the pull of the prestressing steel shall not exceed the yield point of the material or cause visible distortion of the anchorage plate when 95 percent of the ultimate strength of the tendon is applied. Certified test reports from an approved independent testing laboratory, verifying compliance with this requirement, shall be provided to the engineer for each type and/or size of anchoring device.

Alternatively, multi-plane anchorage devices which do not meet with the above requirements (A and B) may be accepted based upon previously approved usage by the department, or on the basis of new or previous tests performed in accordance to and meeting the requirements of the 1999 AASHTO Guide Specifications for the Design and Construction of Segmental Concrete Bridges, Division II, Section 4.2 "Special Anchorage Devices", all at no cost to the department. Also, in such cases, any additional confinement reinforcement or modifications to existing reinforcement required for satisfactory performance of the anchorage devices shall be incorporated in the structure at no additional cost. Certified test reports from an approved independent testing laboratory, verifying compliance with this requirement, shall be provided to the engineer for each type and/or size of anchoring device.

The contractor's use of an anchorage design using two part wedges shall be immediately discontinued if these wedges show any sign of slippage, or if they fail to grip the tendon without exceeding the anticipated set. The contractor shall be required to furnish and use acceptable three part wedges for anchoring post-tensioning strands if two part wedges are rejected at no additional cost to the department.

### B.1.3 Bar Couplers

For permanent applications, the use and location of bar couplers shall be subject to approval by the engineer. Where bars are extended by the use of couplers, the assembled units shall develop at least 95 percent of the manufacturer's minimum specified ultimate tensile strength of the bar, tested in an unbonded state without exceeding the anticipated set.

### B.1.4 Ducts

Unless specifically noted on the Plans or otherwise approved by the engineer, ducts for post-tensioning shall conform to the requirements of this specification.

Ducts embedded in the concrete for prestressing steel shall be high density virgin polyethylene. Ferrous metal ducts are not permitted. Embedded ducts shall be corrugated.

Ducts, pipes, and all connections shall be capable of withstanding the pressure required for pre-grouting air pressure test and for flushing the ducts in the event of an aborted grouting operation.

#### B.1.4.1 Size of Ducts

Ducts for multi-strand, multi-bar, or multi-wire tendons shall have an inside area at least 2.5 times the net area of the tendon. Ducts for single strand, single bar, or single wire tendons shall have an inside diameter at least 3/8 inch (10 mm) larger than the nominal diameter of the strand, bar, or wire.

#### B.1.4.2 Ferrous Metal Ducts

Do not use Ferrous Metal Ducts.

#### B.1.4.3 Epoxy Coated Metal Ducts

Do not use Epoxy Coated Metal Ducts.

#### B.1.4.4 Polyethylene (P.E.) Ducts and Pipes

Ducts and pipes shall be sufficiently rigid to withstand placement of concrete, grouting, and construction loads without damage or excessive deformation, and shall be watertight. Corrugated ducts shall be in accordance to ASTM Designation D 3350 with a cell classification PE345433C. Rigid smooth walled polyethylene pipes shall be in accordance to ASTM Designation D 1248, Type III, Grade 34, Cat.5.

Plastic material used shall not react with concrete, shall not enhance corrosion of prestressing steel, and shall be free of water soluble chloride.

Smooth pipes shall not be used in locations embedded in the concrete.

**B.1.4.5 Steel Pipes**
Where called for on the Plans, steel pipes shall conform to ASTM A-53, Grade B Schedule 40. The steel pipes shall be galvanized.

**B.1.5 Grout Vents, Injection and Ejection Pipes**
Vents shall be ¾ inch (20 mm) minimum diameter suitable plastic pipe. Plastic components shall not react with the concrete or enhance corrosion of the prestressing steel. Plastic components shall be free of water soluble chlorides.

Grout injection pipes shall be fitted with positive mechanical shut-off valves. Vents and ejection pipes shall be fitted with valves or other devices capable of withstanding the grout pumping pressures.

**B.1.6 Grout**
Grouts shall be prebagged in plastic lined or coated bags. Stamp grout bags with date of manufacture, lot number and mixing instructions. Any change of materials or material sources requires retesting and certification of the conformance of the grout with the physical properties requirements. A copy of the Quality Control Data Sheet for each lot number and shipment sent to the job site shall be provided to the contractor by the grout supplier and furnished to the engineer.

Materials with a total time from manufacture to usage in excess of six months shall be retested and certified by the supplier before use or shall be removed and replaced.

Manufacturers of post-tensioning grout seeking evaluation of their product shall submit material to the WisDOT Materials Laboratory for testing and shall provide certified test reports from an audited and independent Cement and Concrete Reference Laboratory (CCRL) which shows the material meets all the requirements specified herein.

The material shall be mixed in accordance to the manufacturer's recommendations. Grouts shall achieve a non-bleeding characteristic.

Grouts shall contain no aluminum powder.

The water content shall be the minimum necessary for proper placement, and shall not exceed a water-cement ration of 0.35.
Grouts and temporary corrosion protection methods shall not involve toxic substance. Grout shall meet or exceed the specified physical properties stated herein as determined by the following standard and modified ASTM test methods.

| Property | Test Value | Test Method |
|---|---|---|
| Total Chloride Ions | Max. 0.08% by weight of cementitious material | ASTM C 1152 |
| Fine Aggregate (if utilized) | Max Size <= No. 50 Sieve (300 micron) | ASTM C 33 |
| Volume Change @ 28 days | 0.0% Shrinkage @ 24 hours<br><=0.3% Expansion @ 28 days | ASTM C 1090 * |
| Expansion | <= 2.0% for up to 3 hours | ASTM C 940 |
| Compressive Strength @ 28 days (Average of 3 cubes) | >= 5,000 psi (34.5 Mpa) | ASTM C 942 |
| Initial Set of Grout | Min. 3 hours<br>Max. 12 hours | ASTM C 953 |
| Fluidity Test **<br>Efflux Time from Flow Cone | | |
| (a) Immediately after mixing | Min. 11 sec.<br>Max. 30 sec. | ASTM C 939<br>ASTM C 939 *** |
| | or Min. 9 sec.<br>Max. 20 sec. | ASTM C 939 *** |
| (b) 30 minutes after mixing with remixing for 30 sec. | Max. 30 sec. | ASTM C 939 |
| | Or Max. 30 sec. | ASTM C 939 *** |
| Bleeding @ 4 hours | Max. 0%<br>Max. 2% at 43.5 psi (300 kPa) | ASTM C 940 ****<br>Schupack ***** |
| Permeability @ 28 days | Max. 2500 coulombs at 30 V for 6 hours | ASTM C 1202 |

* Modify ASTM C 1090 to include verification at both 24 hours and 28 days.

** Adjustments to flow rates will be achieved by strict compliance with the manufacturer's recommendations.

*** Grout fluidity shall meet either the standard ASTM C 939 flow cone test or the modified test described herein. Modify the ASTM C 939 test by filling the cone to the top instead of the standard level. The efflux time is the time to fill a one quart (one liter) container placed directly under the flow cone.

**** Modify ASTM C 940 to conform with the wick induced bleed test described below.

- Condition dry ingredients, mixing water, prestressing strand and test apparatus overnight at 70 to 75°F (21 to 24°C).
- Insert 0.21 gal (800 ml) of mixed conditioned grout with conditioned water into the 0.26 gal (1,000 ml) graduated cylinder. Mark the level of the top of the grout.
- Wrap the strand with 2 inch (50.8 mm) wide duct or electrical tape at each end prior to cutting to avoid splaying of the wires when it is cut. Degrease (with acetone or hexane solvent) and wire brush to remove any surface rust on the strand before temperature conditioning. Insert completely a 20 inch (508 mm) length of conditioned, cleaned, AASHTO M203, Grade 270 (1860 MPa), seven wire strand (1/2 inch (13 mm) diameter) into the 0.26 gal (1,000 ml) graduated cylinder (possibly using a centralizer). Mark the level of the top of the grout.
- Store the mixed grout at the temperature range listed above in (a).
- Measure the level of the bleed water every 15 minutes for the first hour and hourly afterward for four hours.
- Calculate the bleed water, if any, at the end of the four hour test period and the resulting expansion per the procedures outlined in ASTM C 940, with the quantity of bleed water expressed as a percent of the initial grout volume. Note if the bleed water remains above or below the top of the grout.

***** Schupack Pressure Bleed Test Using the Gelman Filtration Funnel:

- Grouts shall be mixed in accordance to ASTM C938, “Practice for Proportioning
- Grout Mixtures for Preplaced-Aggregate Concrete.
- Fill the filtration funnel hand tight, while keeping funnel in upright position.
- Place funnel in frame.
- Connect air supply (air pressure at 0 psi (0 kPA)).
- Allow grout to rest in funnel for 10 minutes.
- Increase pressure to 43.5 psi (300 kPa).
- Hold at specified pressure for 5 minutes and record bleed volume to the nearest
- 0.00005 gal (0.2 ml) at the end of hold time.
- Bleed volume shall be reported as a percentage of the sample volume:
- % bleed = [bleed (gal) x 100] / 0.053 gal
- (% bleed = [bleed (ml) x 100] / 200 ml)

If a loss of pressure occurs prior to completion of step (h), the test is considered to have failed for the given pressure level.

**B.2 Testing**

Testing shall conform to the applicable ASTM Specifications for the prestressing material used. All material samples for testing shall be furnished by the contractor at no cost to the department. Job site or site referred to herein shall be considered the location where the prestressing steel is to be installed whether at the bridge site or a remote casting yard.

### B.2.1 Testing of Prestressing Steel and Components

Certified mill reports on the prestressing steel used shall be submitted to the engineer for each lot of post-tensioning steel, and shall show the ultimate strength, modulus of elasticity, and percent elongation at rupture. These reports are required for strand as well as bars.

Two certified test reports as required in Section B.1.2 are required for each anchor type and size. This is required for both strand and bar anchors. The first report verifies that the anchor can support 95 percent of the ultimate force for that tendon in a unbonded state. The second submission depends on the anchor type. If the anchor is a single plate anchor, then calculations are required to verify the anchor satisfies the bearing stresses defined in Section B.1.2. If the anchor is a multi-plate type, then certified test reports are required showing the anchor satisfied the "Special Anchorage Devices" in Section B.1.2.

### B.2.2 Lots and Identification

A lot is that parcel of components as described herein. All bars, anchorage assemblies, and couplers of each size from each mill heat of steel, and all strand from each manufactured reel to be shipped to the site shall be assigned an individual lot number and shall be tagged in such a manner that each such lot can be accurately identified at the job site. Records shall be submitted to the engineer identifying assigned lot numbers with the heat, coil, or reel of material represented. All unidentified prestressing steel, anchorage assemblies or bar couplers received at the site will be rejected. Loss of positive identification of these items at any time will also be cause for rejection.

### B.2.3 Release of Materials

The release of any material by the engineer shall not preclude subsequent rejection if the material is damaged in transit or later damaged or found to be defective.

### B.2.4 Testing by the Contractor

#### B.2.4.1 In-Place Friction Test

This test is intended to demonstrate that the friction characteristics, losses, and resulting tendon forces are in agreement with the design assumptions. This test is only required if authorized by the engineer in order to resolve discrepancies between actual and theoretical elongations in excess of 7 percent.

The test procedure shall consist of stressing the tendon at an anchor assembly with a load cell at the dead end. The test specimen shall be tensioned to 80 percent of ultimate tendon strength in eight equal increments and detensioned in eight equal decrements. For each increment and decrement, the gauge pressure, elongations, and load cell force shall be recorded. Account shall be taken of any wedge seating in both the live end (i.e., back of jack) and the dead end (i.e., back of load cell) and of any friction within the anchorages, wedge plates, and jack as a result of slight deviations of the strands through these assemblies. For long tendons requiring multiple jack pulls with intermediate temporary anchoring, care shall be taken to keep an accurate account of the elongation at the jacking end allowing for intermediate wedge seating and slip of the jacks' wedges.

The test shall be conducted using the lubricants required, if any, to meet the expected friction coefficient.

If, for the contractor's expected friction coefficients, the elongations fall outside the plus or minus 7 percent range, the contractor shall investigate the reason and make revisions to their post-tensioning operations such that the final tendon forces are in agreement with the Plans.

In reconciling theoretical and actual elongations, the value of the expected friction and wobble coefficients shall not be varied by more than plus or minus 10 percent. Significant shortfall in elongations is indicative of poor duct alignments and/or obstructions which the contractor shall correct or compensate for in a manner to be proposed by the contractor and reviewed and approved by the engineer, at no additional cost to the department.

If, during the course of routine stressing operations, there are irreconcilable differences between forces and elongations, or other difficulties, the engineer reserves the right to require additional in place friction tests.

The apparatus and methods used to perform the test shall be proposed by the contractor and shall be subject to the approval of the engineer. Furthermore, this test shall be conducted by the contractor in the presence of the engineer.

Correction or adjustment of elongations as a consequence of the results of the friction test are the responsibility of the originator of the stressing and elongation calculations.

**B.2.5 Tests Reports Required**

Two test reports of the In Place Friction Test shall be submitted to the engineer within two weeks after the test has been performed. Revisions to the theoretical elongations shall be submitted to the engineer for approval.

**B.2.6 Payment for Testing**

Testing by the contractor will not be paid for separately but shall be incidental to the price paid for the post-tensioning.

**C Construction**

**C.1 Protection of Prestressing Steel**

**C.1.1 Shipping, Handling, and Storage**

Protect all prestressing steel against physical damage and corrosion at all times from manufacturer to final grouting or encasing in the concrete. Prestressing steel that has sustained physical damage at any time shall be rejected. Any reel that is found to contain broken wires shall be carefully inspected during use and lengths of strand containing broken wires shall be removed and discarded. The wire shall be bright and uniformly colored, having no foreign matter or pitting on its surface.

Package prestressing steel in containers or shipping forms for protection of the steel against physical damage and corrosion during shipping and storage. A corrosion inhibitor, which prevents rust or other results of corrosion, shall be placed in the package or form,

or shall be incorporated in a corrosion inhibitor carrier type packaging material, or when permitted by the engineer, may be applied directly to the steel. The corrosion inhibitor shall have no deleterious effect on the steel or the concrete or bond strength of steel to concrete. Inhibitor carrier type packaging material shall conform to the provisions of Federal Specification MIL-P-3420. Packaging or forms damaged by any cause shall be immediately replaced or restored to the original condition.

The shipping package or form shall be clearly marked with a statement that the package contains high-strength prestressing steel, the care to be used in handling, and the type, kind, and amount of corrosion inhibitor used, including the date when placed, safety orders, and instructions for use. Low relaxation (stabilized) strand shall be specifically designated per requirements of AASHTO M 203. All such strand not so designated shall be rejected.

**C.1.2 During Installation in the Structure**

When acceptable prestressing steel for post-tensioning is installed in the ducts after completion of concrete curing and if stressing and grouting are completed within twenty calendar days after the installation of the prestressing steel, rust which may form during these twenty days will not be cause for rejection of the steel. Post-tensioning steel installed, tensioned, and grouted in this manner, all within twenty calendar days, will not require the use of a corrosion inhibitor in the duct following installation of the prestressing steel.

For post-tensioning steel installed in ducts prior to concrete placement, the above time shall be reckoned from the day of first installation in the ducts.

Post-tensioning steel installed as above but not grouted within twenty calendar days shall have an approved water soluble oil corrosion inhibitor (emulsified rust passivator) applied in the ducts and shall be subject to all the requirements in this Section pertaining to corrosion protection and rejection because of rust. Immediately prior to grouting, the water soluble oil shall be thoroughly flushed from the ducts with water, and the ducts and tendons shall then be thoroughly dried by air blown into the ducts.

Within 30 calendar days after installation of the post-tensioning steel, ducts shall be grouted in accordance to these Specifications. Except when approved by the engineer in writing, failure to grout tendons within the 30 calendar days specified shall result in stoppage of the affected work and no invoices shall be processed for payment of that affected work.

**C.2 Fabrication of Post-tensioning Ducts and Anchorages in the Final Structure.**

All post-tensioning anchorages, ducts, vent pipes, miscellaneous hardware, reinforcing bars, and other embedments shall be accurately and securely fastened at the locations shown on the Plans, on the approved Shop or Working Drawings, or as otherwise approved by the engineer.

**C.2.1 Ducts**
Ducts shall be accurately aligned and positioned at the locations shown on the Plans, according to the approved Shop or Working Drawings, or as otherwise approved by the engineer. All internal ducts shall be securely fastened in position at regular intervals not exceeding three feet to prevent movement, displacement, or damage from concrete placement and consolidation operations. The method and spacing of duct supports shall be shown on appropriate Shop Drawings.

All alignments, including curves and straight portions, shall be smooth and continuous with no lips, kinks, or dents. All ducts shall be carefully checked and repaired as necessary before the placing of any concrete commences. The tolerance on the location of the ducts for the tendons shall be as specified below.

After installation in the forms, all ends of ducts, connections to anchorages, splices, vents, and the like shall at all times be sealed to prevent the entry of water and debris.

**C.2.2 Splices and Joints**
At splices and joints, and connections to anchorages, ducts shall be smoothly aligned and secured with no lips or kinks. They shall be joined in a manner, which positively prevents the entrance of cement paste and water from the concrete or unwanted leakage of grout during subsequent grouting operations.

**C.2.3 Grout Vents, Injection and Ejection Pipes**
All ducts or anchorage assemblies for permanent post-tensioning shall be provided with pipes or other suitable connections at each end for the injection of grout after prestressing. Vents shall be placed in the following locations:

- At the anchorage area of the tendon.
- At the high points of the duct, when the vertical distance between the highest point and lowest point is more than 20 inches (500 mm).
- An vent shall be placed at or near the lowest point of a tendon.
- Outlets shall be placed at all low points, and shall be free draining.
- At major changes in the cross-section of the duct, such as couplers and anchorages. In addition, one grout vent shall be placed approximately 3 feet (1 m) downstream from the high point vent.

The contractor may use additional injection and vent pipes only when shown on the approved Shop Drawings.

All connections to ducts shall be made with plastic structural fasteners. Waterproof tape shall be used at all connections to include vent and grouting pipes. Vents shall be mortar tight, taped as necessary, and shall provide means for injection of grout through the vents and for sealing the vents.

Grout injection pipes shall be fitted with positive mechanical shut-off valves. Vents and ejection pipes shall be fitted with valves, caps, or other devices capable of withstanding the grout pumping pressures.

All grout caps used must be installed to prevent entrapment of air or water voids and must provide 100 percent coverage of all tendons.

### C.2.4 Tolerances

Post-tensioning ducts shall be positioned within the tolerances given below:

| Table of Duct Position Tolerances | | |
|---|---|---|
| Tolerances in inches (mm) for: | Vertical position | Lateral position |
| Longitudinal Tendons in Integral Bent Cap | ± 1/4 (±6) | ± 1/2 (±12) |

Entrance and exit angles of tendon paths at anchorages and/or at faces of concrete shall be within 3 degrees (5 percent) of desired angle measured in any direction.

Angle changes at duct joints shall not be greater than 3 degrees (5 percent) in any direction.

Anchorages shall be located within ± ¼ inches (±6 mm) of desired position laterally and
±1 inch (±25 mm) along the tendon except that minimum cover requirements to ends of cut off tendons and anchor components must be maintained.

Anchorage confinement reinforcement in the form of spirals, multiple U shaped bars or links, shall be positioned to start within ½ inches (12 mm) of the back of the main anchor plate, providing the anchorage is to be encased or sealed later in the construction, and shall be properly centered around the duct.

In the event of conflicts between the reinforcement and post-tensioning duct, in general, the position of the post-tensioning duct shall prevail and the reinforcement shall be adjusted locally to the approval of the engineer.

## C.3 Placing Concrete

### C.3.1 Precautions

The contractor shall exercise great care when placing and consolidating concrete so as not to displace or damage any of the post-tensioning ducts, anchorage assemblies, splices and connections, reinforcement, or other embedments.

### C.3.2 Proving of Post-Tensioning Ducts

Upon completion of concrete placement, the contractor shall verify that the post-tensioning ducts are free and clear of any obstructions or damage and will be able to accept the intended post-tensioning tendons. If the ducts are found to be deformed such that the tendons cannot be placed, the member shall be rejected unless a workable repair can be made to clear the duct, all to the satisfaction of the engineer.

### C.3.3 Problems and Remedies

If the ducts or any part of the work is found to be deficient, it will be rejected. No remedial or repair work will be permitted without the approval of the engineer. Any remedial work will be completed at no additional cost to the department.

### C.4 Installing Tendons.

Post-tensioning strands may be pushed or pulled through the ducts to make up a tendon. Pushing shall be done with care so as to avoid snagging on any lips or joints in the ducts. The contractor shall take precautions by rounding off the end of the strand or fitting it with a smooth protective cap for this purpose.

Alternatively, strands may be assembled into the tendon, which then may be pulled through the duct together using a special steel wire sock ("Chinese finger") or other device attached to the end. Also, the ends of the strands may be welded together for this purpose. If so, then the end of the bundle must be rounded for smooth passage and the entire welded end together with at least 30 inches (750 mm) of tendon beyond the end of the last weld shall be cut off and wasted. Cutting shall be done with an abrasive saw or similar. Flame cutting shall not be allowed.

In accordance to these Specifications, the time requirements for corrosion protection shall commence from the time the strands were first placed in the ducts and not from the time of concrete placement.

### C.5 Post-Tensioning Operations.

Post-tensioning forces shall not be applied until the concrete has attained the specified compressive strength as determined by cylinder tests.

The stressing of post-tensioning tendons shall be under the immediate supervision of a qualified representative of the post-tensioning specialty contractor, who shall exercise rigid control of the operations as necessary for full compliance with all requirements. As a minimum, the representative shall be present at the beginning of each different type of post-tensioning operation. If the representative determines that the contractor's crew is thoroughly familiar with one type of operation, he/she may deliver a signed statement of competence for the crew to the engineer. In such case, the presence of the representative shall not be required again until a different type of post-tensioning operation occurs. The statement shall list the names of the contractor's crew and crew leader. The stressing operations shall be overseen by the contractor's crew leader, who shall demonstrate competence in supervising the stressing operations and performing elongation measurements and calculations, and shall preferably be an engineer. No stressing operations shall be performed without direct supervision of the representative or the contractor's approved crew leader.

### C.5.1 Stressing Tendons

All post-tensioning steel shall be tensioned by means of hydraulic jacks so that the post-tensioning force shall not be less than that required by the Plans, approved Shop Drawings, or as otherwise approved by the engineer. Monostrand jacks shall not be utilized for stressing tendons unless approved by the engineer.

The maximum temporary stress (jacking stress) in the post-tensioning steel shall not exceed 80 percent of its specified minimum ultimate tensile strength. Tendons shall not be overstressed to achieve the expected elongation.

The post-tensioning steel shall be anchored at initial stresses that will result in the long term retention of permanent stresses or forces of not less than those shown on the Plans or the approved Shop Drawings. Unless otherwise approved by the engineer, the initial stress after anchor set shall not exceed 70 percent of the specified ultimate tensile strength of the post-tensioning steel.

Permanent stress and permanent force are the stress and force remaining in the post-tensioning steel after all losses, including long term creep and shrinkage of concrete, elastic shortening of concrete, relaxation of steel, losses in the post-tensioning steel from the sequence of stressing, friction and unintentional wobble of the ducts, anchor set, friction in the anchorages, and all other losses peculiar to the post-tensioning system.

**C.5.2 Stressing Sequence**

The Plans show the sequence, the phase and the end from which tendons must be stressed. The contractor shall not modify the stressing sequence shown on the Plans without approval from the engineer.

**C.5.3 Stressing Equipment**

Equipment for tensioning the tendons shall be furnished by the manufacturer of the post-tensioning system (tendons, hardware, anchorages, etc.).

**C.5.4 Stressing Jacks and Gauges**

Each jack used to stress tendons shall be equipped with a pressure gauge for determining the jacking pressure. The pressure gauge shall have an accurately reading dial at least 6 inches (150 mm) in diameter.

Each jack and its gauge shall be calibrated as a unit, with the cylinder extension in the approximate position it will be in at the final jacking force. Calibration shall be done when the jack is connected to the equipment (pumps and gauges) in the identical configuration to be used on the job site, e.g. with the same length hydraulic lines. Initial calibration of the jacks and gauges shall be performed by an independent laboratory using a proven load cell. For each jack and gauge unit used on the project, certified calibration charts shall be furnished by the contractor from the independent laboratory prior to stressing the first tendon.

Certified calibration shall be made at the start of the work and at every six months thereafter, or as requested by the engineer. At the option of the contractor, calibrations subsequent to the initial calibration with a load cell may be accomplished by the use of a master gauge. The master gauge shall be supplied by the contractor in a protective waterproof container capable of protecting the calibration of the master gauge during shipment to a laboratory. The contractor shall provide a quick-attach coupler next to the permanent gauge in the hydraulic lines, which enables the quick and easy installation of

the master gauge to verify the permanent gauge readings. The master gauge shall be calibrated by and shall remain in the possession of the engineer for the duration of the project.

Any repair of the jacks, such as replacing seals or changing the length of the hydraulic lines, is cause for recalibration of the jacks using a load cell.

No extra compensation shall be allowed for the initial or subsequent calibrations, or for the use and required calibrations of the master gauge.

**C.5.6 Elongations and Agreement with Forces**

The post-tensioning operation shall be so conducted that the forces being applied to the tendon and the elongation of the post-tensioning tendon can be measured at all times. Elongations shall be measured to the nearest 1/16 inch (2 mm).

For the required tendon force, the observed elongation shall agree within seven percent of the theoretical elongation, or the entire operation shall be checked and the source of error determined and remedied to the satisfaction of the engineer before proceeding further. The tendon shall not be overstressed to achieve the theoretical elongation.

In the event that agreement between the observed and theoretical elongations at the required force falls outside the acceptable tolerances, the engineer may, at their discretion and without additional compensation to the contractor, require "In Place Friction Test" in accordance to Section B.2.1.

**C.5.7 Friction**

The Contract Plans were prepared based on the assumed friction and wobble coefficients and anchor set noted on the Plans. The contractor shall submit calculations and show a typical tendon force diagram, after friction, wobble, and anchor set losses, on the Shop Drawings based upon the expected actual coefficients and values for the post-tensioning system to be used. These coefficients and values shall be given on the Shop Drawings.

If, in the opinion of the engineer, the actual friction significantly varies from the expected friction, the contractor shall revise their post-tensioning operation such that the final tendon force is in agreement with the Plans.

When friction must be reduced, water soluble oil or graphite may be used as a lubricant subject to the approval of the engineer. Lubricants shall be flushed from the duct as soon as possible after stressing is completed by use of water pressure. These ducts shall be flushed again just prior to the grouting operations. Each time ducts are flushed, they shall be immediately blown dry with oil free air.

**C.5.8 Wire Failures in Post-Tensioning Tendons**

Multi-strand post-tensioning tendons having wires, which failed by breaking or slippage during stressing, may be accepted provided the following conditions are met:

- The completed structure shall have a final post-tensioning force of at least 98 percent of the design total post-tensioning force.
- Any single tendon shall have no more than a five percent reduction in cross-sectional area of post-tensioning steel due to wire failure.

As an exception, any of the above conditions may be waived as approved by the engineer when conditions permit the contractor to propose acceptable alternative means of restoring the post-tensioning force lost due to wire failure.

**C.5.9 Cutting of Post-Tensioning Steel**

Post-tensioning steel shall be cut by an abrasive saw within ¾ to 1½ inches (20 to 40 mm) away from the anchoring device. Flame cutting of post-tensioning steel is not allowed.

**C.5.10 Record of Stressing Operations**

The contractor shall keep a record of the following post-tensioning operations for each tendon installed:

- Project name, number.
- Contractor and/or subcontractor.
- Tendon location, size, and type.
- Date tendon was first installed in ducts.
- Reel number for strands and heat number for bars.
- Assumed and actual cross-sectional area.
- Assumed and actual Modulus of elasticity.
- Date Stressed.
- Jack and Gauge serial numbers per stressing operation.
- Required jacking force.
- Gauge pressures.
- Elongations (anticipated and actual).
- Anchor sets (anticipated and actual).
- Stressing sequence.
- Stressing mode (one end/ two ends/ simultaneous).
- Witnesses to stressing operation (Contractor and inspector).
- Date grouted, days from stressing to grouting, grouting pressure applied, and injection end.

Any other relevant information shall also be recorded. The contractor shall provide the engineer with a complete copy of all stressing and grouting operations.

**C.6 Grouting Operations**

Within 30 calendar days after installation of the post-tensioning steel, ducts shall be grouted in accordance to these Specifications. Except when approved by the engineer in writing, failure to grout tendons within the 30 calendar days specified shall result in stoppage of the affected work and no invoices shall be processed for payment of that affected work.

After stressing and prior to grouting, tendons shall be protected against corrosion or harmful effects of debris by temporarily plugging or sealing all openings and vents until the tendon is grouted.

When stressing has been completed and the stressed tendons have been accepted by the engineer, the annular space between the tendons and the duct shall be grouted.

Grouting operations shall be supervised, inspected and documented by qualified technician(s) and/or engineer(s) who have received training and certification under the ASBI Grout Certification Program.

**C.6.1 Equipment**

The grouting equipment shall include a colloidal grout mixer capable of continuous mechanical mixing, and shall produce a grout free of lumps and undispersed cement. The equipment shall be able to pump mixed grout in a manner, which will comply with all the provisions specified herein. Accessory equipment, which will provide for accurate solid and liquid measures, shall be provided to batch all materials.

Grout pumps shall be positive displacement type and shall be able to produce an outlet pressure of at least 150 psi (1035 kPa). Pumps shall have seals adequate to prevent oil, air, or other foreign substances entering into the grout and to prevent loss of grout or water. A pressure gauge having a full scale reading of no more than 300 psi (2070 kPa) shall be placed at some point in the grout line between the pumping outlet and the duct inlet. The grouting equipment shall contain a screen having clear openings of 1/8 inches (3 mm) maximum size to screen the grout prior to its introduction into the grout pump. If grout with an additive is used, a screen opening of 0.20 inches (5 mm) is satisfactory.

This screen shall be easily accessible for inspection and cleaning. The grouting equipment shall utilize a gravity feed to the pump inlet from a hopper attached to and directly over it. The hopper must be kept at least partially full at all times during the pumping operation to prevent air from being drawn into the post-tensioning duct. Under normal conditions, the grout equipment shall be capable of continuously grouting the longest tendon on the project in not more than 20 minutes.

**C.6.2 Mixing**

Mix the grout in accordance to the manufacturer's instructions to obtain a homogenous mixture. Perform a fluidity test on the mixed grout, in accordance to standard spec 603.19.1.5-1.6, prior to beginning the injection process. Obtain target flow rates as a function of mixer type used and ambient temperature from the grout manufacturer. Do not begin the grouting process until the proper grout properties have been obtained.

Batches shall be placed within 30 minutes of mixing.

### C.6.3 Grout Injection

All grout vents and high point vent openings shall be open when grouting starts. Injection and ejection vents shall be provided with positive shut-offs. Grout shall be allowed to flow from the first vent after the injection vent until any residual flushing water or entrapped air has been removed, at which time the vent shall be closed. Remaining vents shall be closed in sequence in the same manner except that at intermediate crests, outlet placed a short distance downstream of the crest shall be closed before their associated crest outlet. Grout shall be injected from the near the lowest end of a tendon in uphill direction.

The pumping pressure at the injection vent shall not exceed 250 psi (1725 kPa); however, normal operations shall be performed at approximately 75 psi (520 kPa). If the actual grouting pressure exceeds the maximum allowed, the injection vent shall be closed and the grout shall be injected at the next vent, which has been, or is ready to be, closed as long as a one way flow is maintained. Grout shall not be injected into a succeeding vent from which grout has not yet flowed. If this procedure is used, then the vent, which is to be used for injection, shall be fitted with a positive shut-off. When one-way flow of grout cannot be maintained as outlined above, the grout shall be immediately flushed out of the duct with water.

Grout shall be pumped through the duct and continuously wasted at the ejection vent until no visible slugs of water or air are ejected. To ensure that the tendon remains filled with grout, the ejection and injection vents shall be closed in sequence, respectively, under pressure when the tendon duct is completely filled with grout. The positive shut-offs at the injection and ejection vents shall not be removed or opened until the grout has set.

### C.6.4 Temperature Restrictions

In temperatures below 32°F (0°C), ducts shall be kept free of water to avoid damage due to freezing. The temperature of the concrete shall be 36°F (2°C) or higher from the time of grouting until job cured 2 inch (50 mm) cubes of grout reach a minimum compressive strength of 800 psi (5500 kPa). Grout shall not be above 90°F (32°C) during mixing or pumping. If necessary, the mixing water shall be cooled.

### C.6.5 Finishing

Valves, caps, and vent pipes shall not be removed or opened until the grout has set. The ends of steel vents shall be removed at least 1 inch (25 mm) below the concrete surface after the grout has set. Ends of plastic vents shall be removed to the surface of the concrete after the grout has set. All miscellaneous material used for sealing grout caps shall be removed prior to carrying out further work to protect end anchorages or filling in concrete anchorage blockouts and the like. Miscellaneous materials include paper, tie wire, duct tape, etc.

**C.6.6 Protection of End Anchorages for Tendons**
Within 54 hours after grouting is completed, exposed end anchorages, strands, and other metal accessories shall be cleaned of rust, misplaced mortar, grout, and other such materials. Immediately following the cleaning operation, a heavy unbroken coating of an epoxy bonding compound shall be applied to all such dry metal surfaces. Epoxy bonding compound shall conform to AASHTO M 235, Class III.

Tight fitting forms shall be installed and held in place securely against the previously placed concrete. After application of the epoxy bonding agent, the void between the form and the anchorage shall be filled with a non-shrink grout mix to protect the anchorage. This non-shrink grout may be Embeco, Chem-Comp, Five Star, or approved equal. The non-shrink grout shall be placed within the "tack time" period of the epoxy bonding agent/compound.

Only non-chloride bearing non-shrink grout mixes shall be used for anchorage protection. After grout patches have been finished and cured, two heavy brush coats of bituminous protective coating material conforming with AASHTO M 115 shall be applied to the grout patch in a manner and thickness recommended by the manufacturer.

**C.6.7 Inspection of Grouted Anchorages**
Physical probing and inspection of anchorages shall be conducted during the construction of the first cantilever and the first span to ensure that there are no bleed water or subsidence voids. All cantilever (top deck) tendons anchoring at three joint locations representing the shortest, the medium, and the longest tendons at the first cantilever shall be inspected at 48 hours after grouting. All continuity tendons anchoring in the first span being completed shall be inspected at 48 hours after grouting. Subsequent spot inspections of one cantilever tendon and one continuity tendon per span may be conducted if directed by the engineer. Any voids discovered should be filled immediately with the approved grout. The presence and recurrence of significant voids or bleed water shall be investigated and remedial measures proposed for the engineer’s acceptance. The engineer may suspend further work until the cause and remedial measures is submitted to their satisfaction. The contractor shall advise the engineer the time at which the probings and inspections are to take place in order that the engineer’s representative may witness the process and results.

**D Measurement**
The department will measure Post-Tensioning Integral Pier Cap by the pound, acceptably completed. The quantity of post-tensioning tendons to be paid for under this Section shall be the computed weight, in pounds, of permanent post-tensioning steel tendons entered into the completed structure and accepted. Measurement shall be the theoretical plan length measured from anchor plate bearing face to anchor plate bearing face with no allowance made for waste or extension past the anchor plate faces. No measurement will be made for temporary post-tensioning, which shall be considered incidental to the item "Post Tensioning Integral Pier Cap."

For quantity determination the following unit weights shall be used:

| **Prestressing System** | **Weight per Unit Length** |
|---|---|
| 0.50 inch (12.70 mm) diameter seven wire strand | 0.521 plf (0.775 kg/m) |
| 0.60 inch (15.24 mm) diameter seven wire strand | 0.740 plf (1.102 kg/m) |
| 1.00 inch (26 mm) high strength deformed bar | 3.010 plf (4.480 kg/m) |
| 1.25 inch (32 mm) high strength deformed bar | 4.395 plf (6.540 kg/m) |
| 1.42 inch (36 mm) high strength deformed bar | 5.564 plf (8.280 kg/m) |

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0085.4310 | Post-Tensioning Integral Pier Cap | LB |

Payment shall be full compensation for furnishing, installing, stressing, grouting all post-tensioning tendons, and probing and inspecting grouted anchorages. Payment shall also include anchorage assemblies and post-tensioning system hardware which is not embedded in concrete, external ducts, grout and grouting, all testing, anchorage protection systems. This payment shall also include lubricants in the tendon ducts for friction control and flushing the lubricant from the tendon ducts after stressing. No separate measurement and payment will be made for anchorage components, local anchorage zone reinforcement supplied as an integral part of a proprietary anchorage system, nor ducts for similar post-tensioning system hardware. Anchorage components, ducts, and similar items of post-tensioning system hardware, which are embedded within precast components or cast-in-place concrete, shall be deemed to be included in the cost of the precast components or cast-in-place concrete.

In the event that the contractor constructs the structure with an accepted alternate not detailed on the Plans, the payment shall be based on the unit price bid extended by either the quantities shown on the Plans or the actual quantities used and accepted, whichever is less.

## 308. Removing Pavement Markings Water Blasting, Item SPV.0090.0010.

**A Description**

This special provision describes removing pavement markings using high pressurized water spray from locations shown on the plans or as the engineer directs. Conform to standard spec 646 as modified in this special provision.

**B (Vacant)**

**C Construction**

Remove pavement marking using a high pressurized water spray with a vacuum recovery system to provide a clean, dry surface, without the use of a secondary cleanup process when pavement or ambient air temperature is 36 degrees F and rising. Remove all

markings in their entirety. Provide equipment with a storage system that contains wastewater and debris. Control blast head at all times.

Obtain approval from engineer to perform alternative removal process, including grinding, when either restricted from using water blasting or water blasting alone was unsuccessful.

**D Measurement**
The department will measure Removing Pavement Markings Water Blasting by the linear foot of 4-inch wide line, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.0010 | Removing Pavement Markings Water Blasting | LF |

Payment is full compensation for removing pavement markings.
SEF Rev. 14_0319

## 309. Removing Concrete Barrier Precast, Item SPV.0090.0011.

**A Description**
This special provision describes Removing Concrete Barrier Precast in accordance to the pertinent provisions of standard spec 204 and as hereinafter provided. The barrier has been left in place under a previous contract.

The concrete barrier precast including any attached temporary glare screen and reflectors becomes the property of the contractor at the completion of the contract.

**B (Vacant)**

**C (Vacant)**

**D Measurement**
The department will measure Removing Concrete Barrier Precast in linear feet, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item.

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.0011 | Removing Concrete Barrier Precast | LF |

Payment is full compensation for removing concrete barrier temporary precast including any attached temporary glare screen and reflectors.

## 310. Removing Reinforced Concrete Pipe, Item SPV.0090.0014; Removing Steel Pipe, Item SPV.0090.0015; Removing Miscellaneous Pipe, Item SPV.0090.0016.

### A Description

This special provision describes completely or partially removing existing utilities and disposing of all resulting materials in accordance to the plans, standard specifications, Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and amendments (SSSW), and as hereinafter provided and these special provisions.

### A.1 Removing Reinforced Concrete Pipe

This item includes removing existing concrete utility pipes with or without reinforcement of varying sizes between 6 inches and 24 inches as shown on the plans. The item Removing Reinforced Concrete Pipe does not include removing storm sewer pipes. Removing Storm Sewer will be paid for under separate items.

### A.2 Removing Steel Pipe

This item includes removing existing steel, ductile iron and cast iron utility pipes 18 inches and greater in diameter as shown on the plans. Removal of carrier pipes inside casing pipes is incidental to the item Removing Steel Pipe. Removal of existing steel, ductile iron and cast iron utility pipes less than 18 inches in diameter are not included in the item Removing Steel Pipe and are considered incidental to the Excavation Common bid item unless included in the Removing Water Pipe item. Asbestos lined pipes will be removed by the original utility owner and are not included in the item Removing Steel Pipe. Removal of existing utility pipes consisting of materials other than concrete or steel of any size are incidental to the Excavation Common bid item.

### A.3 Removing Miscellaneous Pipe

This item includes removing existing steel pipes due to conflicts with Structures B-40-787, wall R-40-468, and sign bridge S-40-91. These existing steel pipes vary in diameter between 6 inches and 16 inches as shown on the plans. The item Removing Miscellaneous Pipe will only pay for removals within the following segments.

- Station 151EW+10, 104’ RT to Station 151EW+31, 139’ RT
- Station 167EW+08, 102’ RT to Station 167EW+14, 102’ RT
- Station 167EW+06, 127’ RT to Station 167EW+12, 127’ RT
- Station 748GC+45, 27’ LT to Station 749GC+79, 31’ LT

### B Materials

Furnish Backfill Granular in accordance to the pertinent requirements of standard spec 209 for use as backfill material as directed by the engineer.

**C Construction**
Perform work in accordance to standard spec 204 and as hereinafter provided. The contractor is responsible for the safe methods and sequence of controlled removal operations. As directed by the engineer, completely remove the existing utility to the extent required to avoid interfering with new construction work.

Thoroughly clean the ends of the existing pipe and plug the existing utility connections to remain with brick or concrete block masonry, or with any grade of concrete specified under standard spec 501.3.1.3, or any engineer-approved commercial grade of concrete.

Backfill all excavations or voids not occupied by other work under this contract in accordance to standard spec 204.3.1.2. Compact backfill in accordance to standard spec 207.3.6.2.

**D Measurement**
The department will measure Removing Reinforced Concrete Pipe, Removing Steel Pipe, and Removing Miscellaneous Pipe bid items by the linear foot acceptably completed, measured horizontally to the nearest foot from face to face of bulkheads along the centerline of the pipe.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.0014 | Removing Reinforced Concrete Pipe | LF |
| SPV.0090.0015 | Removing Steel Pipe | LF |
| SPV.0090.0016 | Removing Miscellaneous Pipe | LF |

Payment is full compensation for furnishing all excavating; for cutting and removing existing utilities; for furnishing any required brick, concrete block, or concrete; for furnishing all plugging and bulkheading; for furnishing all backfilling; for furnishing, placing, and compacting Backfill Granular; for hauling and disposing of all materials.

## 311. Fence Screening, Item SPV.0090.0029.

**A Description**
This special provision describes fabricating, transporting, and erecting Fence Screening in accordance to the plans, applicable portions of the standard specifications, and as hereinafter provided.

**B Materials**
Furnish hardware and lumber materials that are in accordance to the pertinent requirements of standard spec 507 and as modified in this special provision.

Provide grade A, A-2, A-FA, A-S, A-T, A-IS, or A-IP concrete conforming to standard spec 501 for concrete footing. Provide QMP for class III ancillary concrete as specified in standard spec 716.

Galvanize all structural steel after fabrication by the hot dip process in accordance to ASTM A123. Submit to the engineer certification of compliance that structural steel galvanized after fabrication is in accordance to ASTM A123. Galvanize steel hardware and threaded fasteners, bolts, nuts, and washers in accordance to ASTM A153.

**C Construction**
Construct the fence screening at the locations shown on the plans, in accordance to standard spec 507, the contract specifications, and as directed by the engineer.

**C.1 Tolerances**
Install the posts and panels comprising the fence screening plumb within ½-inch of vertical in 15-feet. Locate the posts to the line and grades as shown in the plans to within +/- ¾-inch. Where adjustments are required for alignment, Use a mortar base or steel shims..

**D Measurement**
The department will measure Fence Screening by the linear foot, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.0029 | Fence Screening | LF |

Payment is full compensation for furnishing all materials, including all hardware, lumber, and concrete and for setting posts and panels including placing concrete.
SEF 14_1211

## 312. Concrete Barrier Type S42C With 48-Inch Pan, Item SPV.0090.0100; Type S56 Special, Item SPV.0090.0101; Type S56A Special, Item SPV.0090.0102; Type S42 With 24-Inch Pan, Item SPV.0090.0103; Vertical Back Type S42 Modified With 24-Inch Pan, Item SPV.0090.0104; Vertical Back Type S56 Modified With 24-Inch Pan, Item SPV.0090.0105; Vertical Back Type S56 Modified, Item SPV.0090.0106; Type S32C, Item SPV.0090.0108; Type S32 With 24-Inch Pan, Item SPV.0090.0110; Type S42 With 48-Inch Pan, Item SPV.0090.0112.

**A Description**
Construct Concrete Barrier (Type) (Size) in accordance to standard spec 603, details shown in the plans and as hereinafter provided.

**B Materials**
Furnish materials conforming to standard spec 603.2.

Concrete minimum strength to be 4000 psi.

**C Construction**
Use construction methods conforming to standard spec 603.3.

Barrier shall consist of cast-in-place construction. Pre-cast barrier will not be accepted.

*Delete paragraph (1) in standard spec 603.3.1.2 and replace with the following:*

Install anchor bars at the locations, spacing, and depth shown in the plans.

Construct the Concrete Barrier (Type) (Size) to present a smooth, uniform appearance in its final position conforming to the horizontal and vertical lines shown on the plans or ordered by the engineer, and be free of lumps, sags or other irregularities. The top and exposed faces of the barrier shall conform to standard spec 603.3.1.5.

If constructed by using a slip form machine or similar type equipment, the Concrete Barrier (Type) (Size) shall be of well-compacted, dense concrete, and the exposed surfaces conform to standard spec 603.3.1.7. If requested by the engineer, evidence of successful operation of the slip form machine or other equipment may be required.

Feed concrete into the slip form machine at a uniform rate. Operate the machine under sufficient uniform restraint to forward motion to produce a well compacted mass of concrete free from surface pits larger than one inch in diameter and requiring no further finishing, other than that conforming to standard spec 603.3.1.6.

Utilize concrete of such consistency that, after slip forming, it will maintain the shape of the barrier without support.

Construct expansion joints in conformance with standard spec 603.3.1.3.

When forming joints before the concrete has hardened, support adjacent portions of the barrier firmly with close fitting shields.

When forming joints after the application of curing compound, treat the exposed faces of the barrier in the vicinity of the joint with curing compound after the forming of the joints.

In transitions between barrier shapes, tie reinforcement bars to Concrete Barrier (Type) (Size) reinforcement by tying the first vertical bar +/- 3 inches from the transition point and lapping any horizontal bars that match.

**D Measurement**
The department will not measure Concrete Barrier (Type) (Size). The department will use pay plan quantity according to the Pay Plan Quantity article.

**E Payment**

The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.0100 | Concrete Barrier Type S42C With 48-Inch Pan | LF |
| SPV.0090.0101 | Concrete Barrier Type S56 Special | LF |
| SPV.0090.0102 | Concrete Barrier Type S56A Special | LF |
| SPV.0090.0103 | Concrete Barrier Type S42 With 24-Inch Pan | LF |
| SPV.0090.0104 | Concrete Barrier Vertical Back Type S42 Modified With 24-Inch Pan | LF |
| SPV.0090.0105 | Concrete Barrier Vertical Back Type S56 Modified With 24-Inch Pan | LF |
| SPV.0090.0106 | Concrete Barrier Vertical Back Type S56 Modified | LF |
| SPV.0090.0108 | Concrete Barrier Type S32C | LF |
| SPV.0090.0110 | Concrete Barrier Type S32 With 24-Inch Pan | LF |
| SPV.0090.0112 | Concrete Barrier Type S42 With 48-Inch Pan | LF |

Payment is full compensation in accordance to standard spec 603.5.2.

*Delete paragraph (1) in standard spec 603.5.2 and replace with the following:*

Except as specified otherwise below for cast in place barrier deficient in smoothness by more than 3/8 inch, payment for Concrete Barrier (Type) (Size) is full compensation for excavating and preparing the foundation; for providing all materials shown in the plans, including concrete, expansion joints, reinforcement, concrete and base aggregate dense between parallel runs of concrete barrier vertical back, and extruded polystyrene; for furnishing all joints as shown in the plans; and for placing, finishing, protecting, and curing concrete.

## 313. Maintain and Remove Concrete Barrier Temporary Precast, Item SPV.0090.0124.

**A Description**

This special provision describes maintaining existing concrete barrier temporary precast including any attached temporary glare screen and reflectors and removing these items upon contract completion. The temporary barrier has been left in place under a previous contract. Assume ownership and responsibility of the temporary barrier, temporary glare screen and reflectors upon the contract's Notice to Proceed. The location of this temporary barrier is shown in the Traffic Control plans.

Concrete barrier temporary precast, including any attached temporary glare screen and reflectors becomes property of the contractor at the end of this contract.

**B Materials**

The concrete barrier temporary precast left in place from a previous project is Wisconsin type concrete barrier temporary precast.

**C Construction**
Maintain Wisconsin type concrete barrier temporary precast left in place in accordance to standard spec 603.

Realign the wall after snow plow operations or as directed by the engineer. Maintain reflectors and hardware in a condition similar to when new on the project.

Keep drainage/lifting slot holes free from debris.

**D Measurement**
The department will measure Maintain and Remove Concrete Barrier Temporary Precast by the linear foot of concrete barrier temporary precast, acceptably maintained and removed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.0124 | Maintain and Remove Concrete Barrier Temporary Precast | LF |

Payment is full compensation for receiving, maintaining, keeping concrete barrier temporary precast drainage/lifting slot holes free from debris, and removing from the project site concrete barrier temporary precast including any attached temporary glare screen and reflectors.

## 314. Pipe Underdrain 6-Inch Special, Item SPV.0090.0126.

**A Description**
This special provision describes providing necessary subsurface drainage by constructing trenches, placing the required geotextile fabric, installing the designated pipes or drainage devices, connecting the underdrain to receiving structures, providing cored connection holes, back-plastering and or mortaring connections to storm sewer structures (both on the external and internal sides of the receiving structure), providing and installing PVC or HDPE fittings, and caps or plugs ,for excavating, plowing, backfilling the trenches with the specified backfill material in accordance to standard specs 310, 612 and 645, salvaging; disposing of surplus material; and restoring the work site as shown on the plans and details, and as hereinafter provided.

**B Materials**
**B.1 Base Aggregate**
Use only base aggregate open graded conforming to standard spec 310.2.

**B.2 Geotextile Fabric**
Utilize geotextile fabric consisting of Type DF Schedule A and conforming to standard spec 645.2.4. Completely wrap the installation trench with geotextile fabric.

**C (Vacant)**

**D Measurement**
The department will measure Pipe Underdrain 6-Inch Special by the linear foot, acceptably completed. The department will measure along the centerline of the pipe, center to center of junctions and fittings.

**E Payment**
The department will pay for the measured quantity at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.0126 | Pipe Underdrain 6-inch Special | LF |

Payment is full compensation for providing, handling, and placing all materials, including pipe, base aggregate open graded, geotextile fabric Type DF Schedule A, providing cored connections, making all necessary connections to the receiving structures, performing back-plastering and or mortaring of underdrain connections to storm sewer structures, providing and installing all fittings, and caps or plugs; for furnishing all excavating, plowing, and re-compacting, salvaging; disposing of surplus material; and restoring the work site.

## 315. Concrete Curb and Gutter 4-Inch Sloped 60-Inch Type A, Item SPV.0090.0152.

**A Description**
This special provision describes constructing curb and gutter work that shall be in accordance to the pertinent provisions of standard spec 601, the plan details and as hereinafter provided.

**B (Vacant)**

**C (Vacant)**

**D Measurement**
The department will not measure Concrete Curb and Gutter 4-Inch Sloped 60-Inch Type A. The department will use pay plan quantity according to the Pay Plan Quantity article.

**E Payment**
The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.0152 | Concrete Curb and Gutter 4-Inch Sloped 60-Inch Type A | LF |

Payment is full compensation for preparing the foundation; all special construction required at driveway entrances or curb ramps; for providing all materials, including concrete, expansion joints, and tie bars in unhardened concrete; for placing, finishing, protecting, and curing concrete and for sawing joints.
SEF Rev. 14_1215

## 316. Concrete Gutter 42-Inch, Item SPV.0090.0153; 48-Inch, Item SPV.0090.0154; 66-Inch, Item SPV.0090.0155.

**A Description**
Perform this work in accordance to the pertinent requirements of standard spec 601 and conform to the construction detail shown in the plans.

**B Materials**
Use materials as described in the construction detail shown in the plans and as described in standard spec 601.2.

**C Construction**
Perform work including placing expansion joints in accordance to standard spec 601.3. Warp gutter slope to match at inlet cover locations.

**D Measurement**
The department will not measure Concrete Gutter (Type). The department will use pay plan quantity according to the Pay Plan Quantity article.

**E Payment**
The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.0153 | Concrete Gutter 42-Inch | LF |
| SPV.0090.0154 | Concrete Gutter 48-Inch | LF |
| SPV.0090.0155 | Concrete Gutter 66-Inch | LF |

Payment is full compensation for preparing the foundation; all special construction required at swales behind retaining walls; for providing all materials, including concrete, expansion joints, expansion material between gutter and coping of the retaining wall; for placing, finishing, protecting, and curing concrete; for forming joints.

## 317. Pavement Marking Grooved Preformed Thermoplastic Stop Line 18-Inch, Item SPV.0090.0300; Stop Line 24-Inch, Item SPV.0090.0301; Crosswalk 6-Inch, Item SPV.0090.0302.

**A Description**
This special provision describes grooving the pavement surface, and furnishing and installing preformed thermoplastic pavement marking as shown on the plans, in accordance to standard spec 647, and as hereinafter provided.

**B Materials**
Furnish preformed thermoplastic pavement marking and sealant material, if required, from the department's approved products list.

**C Construction**
**C.1 General**
For quality assurance, provide the engineer and the region's Marking Section evidence of manufacturer training in the proper placement and installation of preformed thermoplastic pavement marking.

Plane the grooved lines in accordance to the plan details. Use grooving equipment with a free-floating, independent cutting or grinding head. Plane a minimum number of passes to create a smooth groove.

**C.2 Groove Depth**
Cut the groove to a depth of 120 mils ±10 mils deeper than the thermoplastic thickness, from the pavement surface or, if tined, from the high point of the tined surface. Measure depth using a straightedge placed perpendicular to the groove. The department may periodically check groove depths.

**C.3 Groove Width – Linear Markings**
Cut the groove 1-inch wider than the width of the thermoplastic.

**C.4 Groove Position**
Position the groove edge in accordance to the plan details.

**C.4.1 Linear Marking**
Groove at a minimum of 4-inches, but not greater than, 12-inches from both ends of the line segment. Achieve straight alignment with the grooving equipment.

**C.4.2 Special Marking**
Groove a box around the special marking up to 4 inches from the perimeter of the special marking.

**C.5 Groove Cleaning**
**C.5.1 Concrete**
Cooling the cutting head with water may be necessary for some applications and equipment. If cooling water is necessary, flush the groove immediately with water after cutting to remove any build-up of cement dust and water slurry. If this is not done, the slurry may harden in the groove.

If water is used in the grooving process, allow the groove to dry a minimum of 24 hours after groove cleaning, after removal of excess water, and prior to pavement marking application. Clean and dry the groove for proper application of the sealant, and placement of the pavement marking. Use a high-pressure air blower with at least 185 $ft^3$/min air flow

and 90 psi air pressure to clean the groove; use of the air blower does not decrease the amount of time required for the groove to dry.

**C.5.2 New Asphalt**
Groove pavement 10 or more days after paving. Use a high-pressure air blower with at least 185 $ft^3$/min air flow and 90 psi air pressure to clean the groove.

**C.5.3 Existing Asphalt**
Check for structural integrity in supporting grooving operations. If the structural integrity of the asphalt pavement is inadequate to support grooving operations, immediately notify the engineer.

**C.5.4 Asphalt**
Use a high-pressure air blower with at least 185 $ft^3$/min air flow and 90 psi air pressure to clean the groove.

**C.6 Preformed Thermoplastic Application**
Preheat the surface if necessary based on manufacturer's recommendation.

**Application of the preformed thermoplastic in the groove without sealant will be as follows:**

- May 1 to September 30, both dates inclusive – the Southeast Region and the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.
- June 1 to August 31 – the Southwest Region, and the Northeast, North Central, and Northwest Regions except for the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.

**Application of the preformed thermoplastic in the groove with sealant materials will be as follows:**

- October 1 to April 30, both dates inclusive – the Southeast Region and the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.
- September 1 to May 31, both dates inclusive – the Southwest Region and the Northeast, North Central, and Northwest Regions, except for the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.

The sealant must be wet.

**D Measurement**
The department will measure Pavement Marking Grooved Preformed Thermoplastic (Type) (Size) by the linear foot acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.0300 | Pavement Marking Grooved Preformed Thermoplastic Stop Line 18-Inch | LF |
| SPV.0090.0301 | Pavement Marking Grooved Preformed Thermoplastic Stop Line 24-Inch | LF |
| SPV.0090.0302 | Pavement Marking Grooved Preformed Thermoplastic Crosswalk 6-Inch | LF |

Payment is full compensation for cleaning and preparing the pavement surface, furnishing and installing the material.

## 318. Install Temporary Pavement Marking Reflective Orange Paint 4-Inch, Item SPV.0090.0320; 8-Inch, Item SPV.0090.0322; 24-Inch, Item SPV.0090.0324; Install Temporary Pavement Marking Orange Arrows, Item SPV.0060.0320.

**A Description**

This special provision describes installing department furnished orange paint in accordance to applicable provisions of standard spec 649, as shown on the plans, as the engineer directs and as hereinafter provided.

**B Materials**

**B.1 General**

*Delete standard spec 649.2.1.*

Pick up the department furnished orange paint from a location in the greater Milwaukee area provided by Mark Klipstein. Notify Mark at mark.klipstein@dot.wi.gov, (414) 750-1496 to make arrangements for picking up the department furnished materials at least five working days prior to material pick-up. Transport the material to the project.

**B.1.2 Reflectorized Paint**

*Replace standard spec 649.2.3 with the following:*

The department will furnish solvent-borne or water-borne orange paint intended for marking traffic lanes on both concrete and asphalt highways.

Contractor furnished materials include, but are not limited to, the following:

Glass Beads - Furnish glass beads to reflectorize the paint conforming to standard spec 646.2.3.

**C Construction**

**C.1 General**

*Replace standard spec 649.3.1(1) with the following:*

Apply temporary pavement markings at the locations, and to the dimensions and tolerances the plans show, or as the engineer directs.

**C.1.2 Applying Temporary Markings**

*Supplement standard spec 649.3.2 with the following:*

Place orange paint marking after December 1 and before April 15 of the following calendar year as weather and temperature allow as determined by the engineer. If conditions do not allow the placement of orange paint, apply orange epoxy marking according to article Install Temporary Pavement Marking Orange Epoxy found elsewhere in these special provisions.

**D Measurement**

The department will measure Install Temporary Pavement Marking Reflective Orange Paint by the linear foot of line, acceptably completed, according to standard spec 649.4.

The department will measure Install Temporary Pavement Marking Orange Arrows as each individual unit acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.0320 | Install Temporary Pavement Marking Reflective Orange Paint 4-Inch | LF |
| SPV.0090.0322 | Install Temporary Pavement Marking Reflective Orange Paint 8-Inch | LF |
| SPV.0090.0324 | Install Temporary Pavement Marking Reflective Orange Paint 24-Inch | LF |
| SPV.0060.0320 | Install Temporary Pavement Marking Orange Arrows. | Each |

Payment is full compensation for preparing the surface; for coordinating pick-up, transporting and storing the paint, for installing all markings; for providing and installing reflectorization with glass beads; for protecting painted marking until dry; for replacing failed or deteriorated marking., and for the cleanup of all equipment.

## 319. Install Temporary Pavement Marking Orange Epoxy 4-Inch, Item SPV.0090.0326; 8-Inch, Item SPV.0090.0328.

### A Description

This special provision describes installing department furnished orange epoxy in accordance to applicable provisions of standard spec 646, as shown on the plans, as the engineer directs and as hereinafter provided.

### B Materials

#### B.1 General

*Delete standard spec 646.2.4.*

Pick up the department furnished orange epoxy from a location provided by Mark Klipstein. Notify Mark at mark.klipstein@dot.wi.gov, (414) 750-1496 to make arrangements for picking up the department furnished materials at least five working days prior to material pick-up. Transport the material to the project.

### C Construction

#### C.1 Epoxy Equipment

*Replace standard spec 646.3.2.3(1) with the following:*

Use equipment that can spray orange material to produce uniform lines of the specified dimension. The equipment shall also be able to do the following:

1) Apply lines both on the left and right sides, not necessarily simultaneously.
2) Apply 2 lines simultaneously, with either line in a solid or intermittent pattern in orange.

#### C.1.2 Applying Temporary Markings

*Replace standard spec 646.3.1.4 with the following:*

Place orange epoxy marking only after December 1 and before April 15 of the following calendar year as directed by the engineer.

### D Measurement

The department will measure Install Temporary Pavement Marking Orange Epoxy by the linear foot of line acceptable completed according to standard spec 646.4.

### E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.0326 | Install Temporary Pavement Marking Orange Epoxy 4-Inch | LF |
| SPV.0090.0328 | Install Temporary Pavement Marking Orange Epoxy 8-Inch | LF |

Payment is full compensation for preparing the surface including brush-off blasting of concrete; for pick-up, transporting and storing the epoxy, for installing all markings; for providing and installing reflectorization with glass beads; for protecting epoxy pavement marking until dry or cured; for resealing areas of clear protective surface treatment on structures as required in 646.3.1.1; for replacing marking improperly constructed or that fails during the proving period. Payment also includes remarking if initially applied at less than 90% of the specified rate.

## 320. Glare Screens Temporary, Item SPV.0090.0400.

### A Description

This special provision describes furnishing, installing, maintaining, and removing a modular paddle glare guard system on concrete barrier temporary precast at the indicated locations in accordance to the plans and standard specifications, as directed by the engineer and as hereinafter provided.

### B Materials

Utilize modular glare guard units consisting of vertical blades, bases, and a horizontal base rail. Utilize paddle devices a minimum of 24-inches in height and constructed of durable, impact resistant, non-warping flexible materials.

Utilize modular units with cumulative nominal length equal to the length of the temporary barrier on which they are installed so that the joint between the barrier sections shall not be spanned by any one unit. Units shall not alter the design of the concrete barrier.

Design the relative connection strengths between various components of the assembly to minimize the potential impact and debris hazard to approaching traffic and to simplify repairs. Fabricate the modular units in a manner to allow replacement of individual blades while the modular unit remains in place.

The blade, base and rail shall be made of high impact materials with sufficient strength to withstand three impacts from a horizontal steel bar traveling at 40 mph and impacting at mid-height of the blade. After three impacts, there shall be no evidence of cracking, splitting, delaminating or separation from the system.

Provide a paddle glare guard from a manufacturer below or an approved equal:

| Manufacturer | Address |
|---|---|
| Safe-Hit Corporation | 2405 IH 35 West, New Braunfels, Texas, 78130 |
| Carsonite International | 2900 Lockhead Way, Carson City, Nevada, 89701 |
| Flexstake Incorporated | 2150 Andrea Lane, Fort Myers, Florida, 33912 |

**C Construction**
Attach the base rail to the top of the concrete barrier temporary precast by a mechanical or adhesive system with a minimum pullout and shear of 3000 psi. All mounting hardware shall be as specified by the manufacturer.

**D Measurement**
The department will measure Glare Screens Temporary by the linear foot of paddle glare guard, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.0400 | Glare Screens Temporary | LF |

Payment is full compensation for furnishing, installing, maintaining and removing the Glare Screens Temporary.

## 321. Concrete Barrier Temporary Precast Anchoring, Item SPV.0090.0410.

**A Description**
This special provision describes anchoring temporary concrete barrier. Perform this work in accordance with applicable portions of standard spec 603 and as hereinafter provided.

**B (Vacant)**

**C Construction**
Perform this work in accordance with standard spec 603.3.2.1, the plans, and as hereinafter provided.

Under the Concrete Barrier Temporary Precast Anchoring bid item, furnish, deliver, and install anchors at the locations shown in the plans, as required by the project conditions, or as directed by the engineer. Install anchors during the initial installation of the temporary concrete barrier and during any subsequent reinstallations of the temporary concrete barrier as required.

Remove any anchoring during barrier removal and fill remaining holes with epoxy.

**D Measurement**
The department will measure the Concrete Barrier Temporary Precast Anchoring by the linear foot acceptably completed, measured as the linear feet of barrier initially installed or reinstalled. The department will not measure anchoring made solely to accommodate the contractor's means and methods.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.0410 | Concrete Barrier Temporary Precast Anchoring | LF |

Payment is full compensation for furnishing, delivering, and installing anchoring devices; for removal of any anchoring devices and filling holes with epoxy.

## 322. Concrete Barrier Temporary Precast Anchored on Bridge, Item SPV.0090.0412.

**A Description**

This special provision describes anchoring temporary concrete barrier on existing bridge decks. Perform this work in accordance with applicable portions of standard spec 603, the plans, and as hereinafter provided.

**B Materials**

Provide barrier materials in accordance with applicable portions of standard spec 603.2.

For the anchoring system, provide all miscellaneous mounting hardware in accordance with the details shown in plans. Provide shop drawings for the anchoring system to the Department for approval prior to installation.

**C Construction**

Perform this work in accordance with standard spec 603.3, the plans, and as hereinafter provided.

To accommodate anchors through an existing bridge deck, core a hole through the bridge deck at each anchor location and install anchoring bolts or rods and hardware to securely tie the barrier to the bridge deck. With the approval of the engineer the contractor may propose and use an alternate method of core hole locating. The contractor is responsible for accurately locating the core holes for barrier installation in all cases. The contractor shall submit shop drawings for the anchoring system to the Department for review prior to installation.

Prior to coring the bridge deck, place the barrier to mark coring locations, relocate barrier to complete the bridge deck cores, and install the barrier with the anchors at the required locations to line up with the core holes.

Remove anchors for temporary barrier on bridge decks as part of any removal of bridge decks or relocation of the temporary barrier that may be required. Repair any damage to the existing structure from installation or removal of the anchors if the bridge deck is required to continue to carry traffic.

**D Measurement**
The department will measure the Concrete Barrier Temporary Precast Anchored on Bridge by the linear foot, acceptably completed, measured as the linear feet of barrier installed and anchored. The department will not measure anchoring made solely to accommodate the contractor's means and methods.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.0412 | Concrete Barrier Temporary Precast Anchored on Bridge | LF |

Payment is full compensation for furnishing, delivering, and installing anchoring devices including bridge deck coring; for removal of any anchoring devices; for any bridge deck damage repair.

Delivery and installation of the barrier will be paid for under the pertinent items included in the contract. Barrier moves required to accomplish positioning of the cores and anchors to allow installation of the barrier in its ultimate location will be incidental to this bid item and additional deliveries and installations will not be paid.

## 323. Concrete Barrier Temporary Precast Anchored on Asphaltic Bridge Overlay, Item SPV.0090.0414.

**A Description**
This special provision describes anchoring temporary concrete barrier on existing bridge decks with an asphaltic overlay. Perform this work in accordance with applicable portions of standard spec 603, the plans, and as hereinafter provided.

**B Materials**
Provide barrier materials in accordance with applicable portions of standard spec 603.2.

For the anchoring system, provide all miscellaneous mounting hardware in accordance with the details shown in plans. Provide shop drawings for the anchoring system to the Department for approval prior to installation

**C Construction**
Perform this work in accordance with standard spec 603.3, the plans, and as hereinafter provided.

To accommodate anchors through an existing bridge deck with an asphaltic overlay, core a hole through the bridge deck at each anchor location and install steel tube sleeves to line the core holes and install anchoring bolts or rods and hardware to securely tie the barrier to the bridge deck. With the approval of the engineer the contractor may propose and use an alternate method of core hole locating. The contractor is responsible for accurately

locating the core holes for barrier installation in all cases. The contractor shall submit shop drawings for the anchoring system to the Department for review prior to installation.

Prior to coring the bridge deck, place the barrier to mark coring locations, relocate barrier to complete the bridge deck cores, and install the barrier with the anchors at the required locations to line up with the core holes.

Remove anchors for temporary barrier on asphaltic bridge decks as part of any removal of bridge decks or relocation of the temporary barrier that may be required. Repair any damage to the existing structure from installation or removal of the anchors if the bridge deck is required to continue to carry traffic.

**D Measurement**

The department will measure the Concrete Barrier Temporary Precast Anchored on Asphaltic Bridge Overlay by the linear foot, acceptably completed, measured as the linear feet of barrier installed and anchored. The department will not measure anchoring made solely to accommodate the contractor's means and methods.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.0414 | Concrete Barrier Temporary Precast Anchored on Asphaltic Bridge Overlay | LF |

Payment is full compensation for furnishing, delivering, and installing anchoring devices including bridge deck coring; for removal of any anchoring devices; for any bridge deck damage repair.

Delivery and installation of the barrier will be paid for under the pertinent items included in the contract. Barrier moves required to accomplish positioning of the cores and anchors to allow installation of the barrier in its ultimate location will be incidental to this bid item and additional deliveries and installations will not be paid.

## 324. Fence Temporary 6-Foot, Item SPV.0090.0600.

**A Description**

This special provision describes furnishing, erecting and maintaining temporary chain link fence 6-foot including gates, as shown on the plans and as directed by the engineer, in accordance to standard spec 616, and as hereinafter provided. The intent of this specification is to provide a secure enclosure.

**B Materials**

Fencing parts furnished do not have to be new materials. Used, re-rolled and open seam materials will be permitted. Gates shall be a minimum of 12 feet wide.

No specific metallic coating will be required for the chain link fencing materials. Materials furnished do not have to be of the same type. Fence height shall be a minimum of 6 feet.

The engineer may reject fencing materials which, in the engineer's opinion, are too damaged or misaligned to provide acceptable closure.

**C Construction**

Fence posts may be driven into the ground or set in augered holes, backfilled and compacted. Minimum embedment shall be 4 feet. In paved areas fence posts shall be fastened to either temporary concrete barrier or the pavement by methods ensuring a secure enclosure. Where fence is installed in areas that are not to be disturbed by subsequent construction activities, the disturbed area shall be restored in kind at no additional cost to the department.

**D Measurement**

The department will measure Fence Temporary 6-Foot in place by the linear foot from end posts, center to center, along the ground line, acceptably completed. Temporary fence will be measured once for payment. Additional measurement for fence maintenance and removal will not be made.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.0600 | Fence Temporary 6-Foot | LF |

Payment is full compensation for furnishing all materials; erecting posts, gates and fence; maintaining fencing; removing and disposing of fencing; and for restoring disturbed areas.

## 325. Fence Chain Link Vinyl Coated 6-Foot, Item SPV.0090.0610.

**A Description**

This special provision describes furnishing and installing new vinyl clad chain link fencing in accordance to standard spec 616 as shown on the plans, as directed by the engineer, and as hereinafter provided.

**B Materials**

Apply a bonded polyvinyl chloride (PVC) coating conforming to AASHTO M181 Type IV, Class B to all fencing, posts and all other components. Provide PVC coated ties and tension bars that conform to AASHTO M181. Ensure the color of all fencing components matches the color of the chain link fence fabric "Industry Standard Black".

**C Construction**

Color match the fencing components with the railing framework materials before painting the framework. Touch up painted framework surfaces marred by fencing installation.

**D Measurement**
The department will measure Fence Chain Link Vinyl Coated 6-Foot in length by the linear foot, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.0610 | Fence Chain Link Vinyl Coated 6-Foot. | LF |

Payment is full compensation for clearing and grubbing the fence line; for excavating; for furnishing and setting posts, including placing concrete; for furnishing, erecting and tensioning all fence components; for furnishing and applying bonded polyvinyl chloride (PVC) coating; for installing grounds; for removing and properly disposing of all debris, excess excavation and surplus materials; and for providing and driving longer posts into unstable soils at no additional cost to the department.

## 326. Minor Retaining Wall R-2, Item SPV.0090.0901.

**A Description**
This special provision describes furnishing and installing a minor sheet pile retaining wall with cast-in-place concrete facing along the south side of West Greenfield Avenue at the location shown in the plans. Perform work in accordance to the standard specifications, the plans, and as hereinafter provided.

**B Materials**
Furnish concrete masonry conforming to standard spec 504.2.

Furnish coated high strength bar steel reinforcement conforming to standard spec 505.2.

Furnish rubberized membrane waterproofing conforming to standard spec 516.2.3.

Furnish steel sheet piling conforming to standard spec 512.2.1.

Furnish welded stud shear connectors conforming to standard spec 506.2.7.

**C Construction**
Perform structure excavation and backfill the completed structure in accordance to standard spec 206.

Install steel sheet piling in accordance to standard spec 512.3. Install welded stud shear connectors as shown on plans in accordance to standard spec 506.3.20. Construct cast-in-place concrete facing in accordance to standard spec 504.3 and SPV article Architectural Surface Treatment Minor Retaining Wall R2.

Place rubberized waterproofing membrane at the locations shown on the plans in accordance to standard spec 516.3.3.

Sack rub the cast-in-place facing and apply multi-color concrete stain to the architectural surface treatment as noted on the plans and in accordance to SPV article Concrete Staining Multi-Color Minor Retaining Wall R2.

**D Measurement**
The department will measure Minor Retaining Wall R-2 by the linear foot, acceptably completed.

**E Payment**
The department will pay for the measured quantity at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.0901 | Minor Retaining Wall R-2 | LF |

Payment is full compensation for structure excavation and backfilling; delivering and driving steel sheet piling; furnishing and installing welded shear studs; and for furnishing and placing cast-in-place concrete masonry wall facing, coated high strength bar steel reinforcement, and rubberized membrane waterproofing.

Architectural surface treatment and concrete staining multi-color will be measured and paid for separately under the items "Architectural Surface Treatment Minor Retaining Wall R2" and "Concrete Staining Multi-Color Minor Retaining Wall R2".

## 327. Cable Aerial Aluminum 6 AWG Quadruplex, Item SPV.0090.1005; 4 AWG Quadruplex, Item SPV.0090.1006; 2 AWG Quadruplex, Item SPV.0090.1007; 1/0 AWG Quadruplex, Item SPV.0090.1008.

**A Description**
Furnish, install, and connect temporary overhead cable complete with all splicing, identifications, terminations and guy wires at wood poles. The removal of the overhead cable after the temporary lighting is approved for removal.

**B Materials**
Overhead cable shall be aluminum conductors according to ASTM B 230 and shall be Class B stranded according to ASTM B 231, and shall conform to the values listed in the table below:

| **Phase Conductor** | | | | **Messenger Wire** | |
|---|---|---|---|---|---|
| **Size AWG** | **Stranding** | **Avg. Insulation Thickness** | | **Min. Size AWG** | **Stranding** |
| | | mm | mils | | |
| 6 | 7 | 1.1 | 45 | 6 | 6/1 |
| 4 | 7 | 1.1 | 45 | 4 | 6/1 |
| 2 | 7 | 1.1 | 45 | 2 | 6/1 |
| 1/0 | 7 | 1.1 | 45 | 1/0 | 6/1 |

The aerial cable shall be an assembly of insulated aluminum conductors and a steel messenger wire according to ANSI/ICEA S-76-474. The cable assembly may have the messenger wire intertwined with the insulated cables or lashed to the insulated cables by a factory wrap. The cable shall be assembled according to ANSI/ICEA S-76-474.

All cable shall be rated 600-V. The cable shall be rated 105º C dry and 90º C wet and shall be suitable for installation in wet and dry locations, and shall be resistant to oils and chemicals, and UV rated. The UL listing mark, cable voltage, insulation type and ratings, as well as the cable size, shall all be clearly printed on the cable in a color contrasting with the insulation color. When specified, each cable installed shall be identified with its complete circuit number at each termination, splice, junction box or other location where the wire is accessible.

All electric cables installed shall be color coded. Neutral wires shall be color-coded white. Single phase three wire runs of cable shall be color-coded one black, one red, and one white. Insulated ground wires, where applicable, shall be green. Color striping of cables will not be acceptable in lieu of the specified color coding means.

Make the luminaire connections to the aerial cable with listed parallel tap insulation piercing connectors. The connector shall be rated for 600-V, and be listed under UL Standard 486B.

**C Construction**

Overhead cable as shown on temporary lighting plans will not be needed for final lighting. Remove temporary overhead cable. Removal of temporary overhead cable will be incidental to this pay item and it will become property of the contractor. The bid price shall reflect the salvage value of the temporary overhead cable.

Upon written request by the contractor, the engineer may permit to reuse removed temporary overhead cable of ampacity equivalent to the specified cable and of a type and condition approved by the engineer, if possible.

Install guy wires as necessary per WisDOT standard details for Spanwire Temporary Traffic Signal.

Conform to standard spec 655.3.5(9) for ground resistance testing.

**D Measurement**

The department will measure Cable Aerial Aluminum 6 AWG Quadruplex; Cable Aerial Aluminum 4 AWG Quadruplex; Cable Aerial Aluminum 2 AWG Quadruplex; Cable Aerial Aluminum 1/0 AWG Quadruplex in length by the linear foot in place, acceptably completed, and will be taken as the length of the messenger wire. Measurement will be made in a straight line between changes in direction and to the centers of light standards and control cabinets. Sag of the aerial cable or vertical cable will not be measured for

payment. The rewiring to facilitate relocation of the cable due to staging or other construction requirements will not be measured for payment.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.1005 | Cable Aerial Aluminum 6 AWG Quadruplex | LF |
| SPV.0090.1006 | Cable Aerial Aluminum 4 AWG Quadruplex | LF |
| SPV.0090.1007 | Cable Aerial Aluminum 2 AWG Quadruplex | LF |
| SPV.0090.1008 | Cable Aerial Aluminum 1/0 AWG Quadruplex | LF |

Payment is full compensation for providing electrical wire; for making all connections; for providing all connectors, including wire nuts, fuses, fuse holders, splices, tape, and insulators; for providing messenger wire, and guy wires; and for removing temporary overhead cable.

## 328. Cable in Duct 5-6 AWG, Item SPV.0090.1026.

**A Description**

The work consists of furnishing and installing Cable In Duct 5-6 AWG to match the cable characteristics and properties of the cable as specified in standard spec 655.3.2.

**B (Vacant)**

**C Construction**

Conform to all requirements for the standard bid item 655.0146, with the exception that cable is to have five cables instead of the standard four cables to match the # 6AWG.

**D Measurement**

The department will measure Cable in Duct 5-6 AWG as LF individual unit, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.1026 | Cable in Duct 5-6 AWG | LF |

Payment is full compensation for furnishing all work and for labor, tools, equipment and incidentals necessary to complete the work.

## 329. Conduit Reinforced Thermosetting Resin 3/4-Inch, Item SPV.0090.1027.

**A Description**
This special provision describes providing and installing conduit reinforced thermosetting resin ¾ -inch in accordance to standard spec 652 and as shown on the plans.

**B Materials**
All conduit supports shall be of the double roller type as shown in the plans. Roller material shall be suitable for use with reinforced thermosetting resin conduit (RTRC).

Conduit supports shall be galvanized or stainless steel.

**C Construction**
The contractor is advised that all of this type of conduit is installed onto the underdeck of the freeway.

All nuts on supports shall be double nutted.

**D Measurement**
The department will measure Conduit Reinforced Thermosetting Resin 3/4-Inch by the linear foot, acceptably completed, measured along the conduit centerline from the centerline of fittings or, where there are no fittings, from the free ends of the conduit.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.1027 | Conduit Reinforced Thermosetting Resin 3/4-Inch | LF |

Payment is full compensation for providing the conduit, conduit bodies, and fittings; for providing all conduit hangers, clips, attachments, and fittings used to support conduit on structures; for pull wires or ropes; for expansion fittings and caps; for disposing of surplus materials; and for making inspections.

## 330. Liquidtight Flexible Metallic Conduit ¾-Inch, Item SPV.0090.1053.

**A Description**
This special provision describes furnishing and installing liquidtight flexible metallic conduit between wireways utilized for tunnel lighting and the tunnel luminaires.

**B Materials**
The flexible metallic conduit shall be liquidtight with a moisture, oil, and sunlight resistant polyvinyl chloride (PVC) jacket applied directly over the flexible metal conduit with wall thickness in accordance to UL 360.

The flexible metallic conduit shall be UL listed for between -67º F and +221 º F

In accordance to UL 360, the flexible metallic conduit shall meet all of the following performance tests:

- Resistance and High Current
- Fault Current
- Impact
- Tension
- Crushing
- Pipe Stiffness
- Flexibility
- Low Temperature Flexibility
- Zinc Coating
- Vertical Flame
- Physical Properties
- Deformation
- Mechanical Water Absorption
- Moisture Penetration
- Sunlight Resistance
- Test for Secureness of Fittings

The fittings and adapters shall be of the same manufacturer as the conduit.

**C Construction**

Install the fittings, adapters, and conduit between the wireways used in conjunction with tunnel lighting and the tunnel lighting. Install per the manufacturer's instructions and as shown on the plans.

**D Measurement**

The department will measure Liquidtight Flexible Metallic Conduit 3/4-Inch by the linear foot of conduit installed acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.1053 | Liquidtight Flexible Metallic Conduit 3/4-Inch | LF |

Payment is full compensation for furnishing and installing the conduit, including the connectors.

## 331. Wireway Fiberglass 4-Inch x 4-Inch, Item SPV.0090.1054.

**A Description**
This special provision describes furnishing and installing 4-inch x 4-inch fiberglass wireway for distributing power to the tunnel luminaires.

**B Materials**
Wireway shall be a UL Listed, fiberglass feed-through type rated NEMA 12 and 3R and constructed of fiberglass reinforced plastic. Screw clamps shall secure the access door. Seams shall be smooth to prevent insulation damage. Gaskets and gasket adhesives shall be oil resistant.

Materials shall meet flammability rating UL 94-5 and meet UL cold impact test for temperatures to -35 Degree C. The wireway shall be recognized by the NEC for both indoor and outdoor applications.

**C Construction**
Wireway shall be supported per manufacturer's instructions. Mount wireway with cover as the front. Penetrations into the wireway for feeding tunnel fixtures shall be made in accordance to the manufacturer's recommendations.

**D Measurement**
The department will measure Wireway Fiberglass 4-Inch x 4-Inch by the linear foot of wireway, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.1054 | Wireway Fiberglass 4-Inch x 4-Inch | LF |

Payment is full compensation for providing the wireway, fittings, end plug, and anchoring; inspection.

## 332. Wireway Metallic 2.5-Inch x 2.5-Inch, Item SPV.0090.1055.

**A Description**
This special provision describes the furnishing and installing 2.5-inch x 2.5-inch steel wireway for the dimming control wiring associated with the tunnel lighting fixtures.

**B Materials**
Wireway shall be a UL Listed, gasketed, feed-through type rated NEMA 12 and constructed of 16-gauge steel covers and boy with 10-gauge steel flanges. Quick-release latches shall secure the access door. Seams shall be continuously welded and ground smooth to prevent insulation damage. Gaskets and gasket adhesives shall be oil resistant. Unit shall be rated a minimum IP54.

**C Construction**

Support wireway per manufacturer's instructions. Mount wireway with cover to the front and hinge to the top. Penetrations into the wireway for feeding tunnel fixtures shall be made with a properly sized panel punch. Provide a #6 AWG bare bonding jumper at each flange. Ground wireway to the equipment grounding conductors. Touchup any scratches to the wireway paint

**D Measurement**

The department will measure Wireway Metallic 2.5-Inch x 2.5-Inch by the linear foot of wireway, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.1055 | Wireway Metallic 2.5-Inch x 2.5-Inch | LF |

Payment is full compensation for providing the wireway, fittings, end plug, and anchoring;

## 333. Fence Decorative Bridge, Item SPV.0090.4400; Fence Decorative Wall, Item SPV.0090.4410.

**A Description**

This special provision describes fabricating, galvanizing, polymer coating, painting, delivering and installing decorative fencing on bridge superstructures, wing walls, and retaining walls in accordance to the plans, the pertinent provisions of the standard specifications, and as hereinafter provided.

**B Materials**

**B.1 General**

Utilize only materials meeting the requirements as shown on the plans and the applicable provisions of the standard specifications as follows:

- Structural Steel: standard spec 506.2.2
- Steel Mesh: standard spec 505.2.5
- Painting: standard spec 517.2 and 517.3

Blast clean steel prior to fabrication, per SSPC-SP 6 and galvanize according to ASTM A 123. Supply all bolts, nuts and washers as factory galvanized according to ASTM A 153. Repair zinc coating damaged during fabrication as specified in standard spec 513.3.3(3). Grind the welded joints shown in the plans to a smooth finish.

Steel preparation includes the chamfering of sharp edges. Flatten all sharp edges by a single pass of a grinder or suitable device along the sharp edge. Condition any thermal cut edges before blast cleaning by shallow grinding or other cleaning to remove any hardened surface layer. Remove all evident steel defects exposed in accordance to AASHTO M 160 prior to blast cleaning.

Construct the fence fabric of 8 GA. 2-inch by 2-inch welded wire mesh galvanized to ASTM A 123 and then covered with a polymer-coating conforming to the following requirements:

| | |
|---|---|
| Thickness of Polymer-Coating: | ASTM F668 |
| Adhesion: | ASTM F668 |
| Accelerated Aging Test: | ASTM F668, D1499 |
| Mandrel Bend Test: | ASTM F668 |

Construct the polymer-coating of a dense impervious covering applied without voids, tears or cuts that reveal the galvanized mesh substrate. Visible roughness, bubbles, blisters and flaking in the polymer coating will be a basis for rejection. Utilize polymer-coating with color as specified in B.3 and conforming to the requirements of ASTM F934. Place the vertical wires of the mesh on the inside face (pedestrian / traffic side) of the fence.

**B.2 Painting**

Clean all galvanized surfaces to be painted per SSPC-SP1 to remove chlorides, sulfates, zinc salts, oil, dirt, organic matter and other contaminants. Then brush blast clean the cleaned galvanized surface per SSPC-SP7 to create a slight angular surface profile (1.0 - 1.5 mils suggested) for paint adhesion. Do not fracture the galvanized finish or remove any dry film thickness during the brush blast cleaning process.

After cleaning provide a tie coat from an approved coating system that is specifically intended to be used on a galvanized surface. The tie coat shall etch the galvanized surface and prepare the surface for the top coat. Apply a top coat matching the specified color. Utilize a contrasting color for the tie and top coats. Use a pre-approved top coat that is resistant to the effects of the sun, and is suitable for use in a marine environment. Paint the various decorative fence components with the tie and top coats before final assembly of the fence panels. Do not damage the painted surface during panel assembly or fence installation.

Use one of the qualified paint sources and products given below. An equivalent system may be used with the written approval of the engineer.

| Producer | Coat | Products | Dry Film Minimum Thickness (mils) | Minimum Time Between Coats (hours) |
|---|---|---|---|---|
| Sherwin Williams<br>1051 Perimeter Drive,<br>Suite 710<br>Schaumburg, IL 60173<br>(847) 330-1562 | Tie | Recoatable Epoxy Primer B67-5 Series/B67V5 | 2.0 to 4.0 | 6 |
| | Top | Acrolon 218 HS Polyurethane, B65-650 | 2.0 to 4.0 | NA |
| Carboline<br>350 Hanley Industrial St.<br>Louis, MO 63144<br>(314) 644-1000 | Tie | Rustbond Penetrating Sealer FC | 1 | 36 |
| | Top | Carboline 133 LH | 4 | NA |
| Wasser Corporation<br>4118 B Place NW<br>Suite B<br>Auburn, WA 98001 | Tie | MC-Ferrox B 100 | 3.0 to 5.0 | 8 |
| | Top | MC-Luster 100 | 2.0 to 4.0 | NA |

**B.3 Color**
Match Federal Color 27038 – Black, for the finished color for the coating system for decorative fencing.

**C Construction**
Provide shop drawings in accordance to the requirements of standard spec 506.3.2. Provide shop drawings containing material sizes and types, weld sizes and locations, and all necessary details, dimensions, and information to allow fabrication of the fence in conformance with the requirements of the contract. Obtain shop drawing review and acceptance prior to beginning fabrication.

Provide a full sized painted 6-foot by 10-foot long fence test panel. Deliver the test panel to the job site within 60 days of the award of the contract. Unload and set up the test panel in an area designated by the engineer. Obtain test panel acceptance prior to beginning fabrication of fences.

During construction and at the time of delivery the engineer will inspect the frame components. Obtain engineer acceptance of the product after the delivery is unloaded on the site. After the product is unloaded, signify in writing that the fence was received in acceptable condition per the engineer's inspection. Any damage to the fence panels after the acceptable delivery will be the responsibility of the installation contractor.

Conform all welding to the applicable requirements of standard spec 506. Obtain the approval of the engineer prior to any field welding, field cutting, or drilling.

Minimize the number and size of touch-up spots during construction. Follow the manufacturer's recommendations for damaged area repairs. Final acceptance will not be granted without engineer approval of the field paint appearance.

Provide the engineer with the name, address, and phone number of a representative of the fence fabricator for future coordination.

During handling, protect finish coating from damage. If damaged during handling, the fencing may be rejected by the engineer or engineer may direct the fabricator to repair the finish in accordance to the manufacturer's recommendations. Provide the engineer a copy of the manufacturer's recommended repair procedure and materials before repairing damaged coatings.

**D Measurement**

The department will measure Fence Decorative Bridge and Fence Decorative Wall by the linear foot, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.4400 | Fence Decorative Bridge | LF |
| SPV.0090.4410 | Fence Decorative Wall | LF |

Payment is full compensation for cleaning, galvanizing, welding, fabricating, polymer-coating welded wire mesh, painting, assembling, furnishing, delivering and installing fence components, lighting access panels and test panel; for preparing shop drawings and for repairing zinc coating or damaged areas.

SEF Rev. 14_1014

## 334. Fence Decorative HAST Structure Mounted, Item SPV.0090.4411; Fence Decorative HAST Ground Mounted, Item SPV.0090.0605.

**A Description**

This special provision describes fabricating, galvanizing, painting, delivering and installing decorative fencing along the Hank Aaron State Trail (HAST) mounted on retaining walls or ground mounted in accordance to the plans, the pertinent provisions of the standard specifications, and as hereinafter provided.

**B Materials**

**B.1 General**

Utilize only new materials meeting the requirements as shown on the plans and the applicable provisions of the standard specifications as follows:

| | |
|---|---|
| · Caulk | standard spec 502.2.9 |
| · Structural Steel: | standard spec 506.2.2 |
| · Painting: | standard spec 517.2 and 517.3 |
| · Foundation Sleeves | standard spec 521.2 |
| · Concrete | standard spec 616.2.1 |
| · Fabric Tie Wire | standard spec 616.2.3.7 |
| · Anchor Bolts | per plans |

Galvanize steel corrugated foundation sleeves according to ASTM A 123.

Blast clean steel posts, rails and base plates prior to fabrication, per SSPC-SP 6 and galvanize according to ASTM A 123. Supply all bolts, nuts and washers as factory galvanized according to ASTM A 153. Repair zinc coating damaged during fabrication as specified in standard spec 513.3.3(3). Grind the welded joints shown in the plans to a smooth finish.

Steel preparation includes the chamfering of sharp edges. Flatten all sharp edges by a single pass of a grinder or suitable device along the sharp edge. Condition any thermal cut edges before blast cleaning by shallow grinding or other cleaning to remove any hardened surface layer. Remove all evident steel defects exposed in accordance to AASHTO M 160 prior to blast cleaning.

Use fence fabric conforming to standard spec 616.2.3. and woven of 9-gauge wire in 1-inch diamond pattern mesh with the top and bottom selvages knuckled. Ensure the furnished fence fabric is the same nominal height as the fence height called for in the plans. Also provide PVC-coated ties conforming to AASHTO M181. Ensure that the color of all fencing components matches the color of the fence as specified in B.3.

Cover the fence fabric with a polymer-coating conforming to the following requirements:

| | |
|---|---|
| Thickness of Polymer-Coating: | ASTM F668 |
| Adhesion: | ASTM F668 |
| Accelerated Aging Test: | ASTM F668, D1499 |
| Mandrel Bend Test: | ASTM F668 |

Construct the polymer-coating of a dense impervious covering applied without voids, tears or cuts that reveal the galvanized mesh substrate. Visible roughness, bubbles, blisters and flaking in the polymer coating will be a basis for rejection. Utilize polymer-coating with color as specified in B.3 and conforming to the requirements of ASTM F934. Place the vertical wires of the mesh on the inside face (pedestrian / traffic side) of the fence.

Use anchor bolts for anchoring decorative fencing to structures made of the material, size and style the plans show. Furnish them with regular hexagon nuts and standard flat waters. Use anchorage plates of structural carbon steel. Entirely hot-dip galvanize anchor bolts, anchorage plates, nuts and washers according to ASTM A153, class C supplemented by

ASTM F2329. Use only nuts and anchor bolts manufactured with sufficient clearance to allow the nuts to run freely on the boats after galvanizing.

**B.2 Painting**

Clean all galvanized surfaces to be painted per SSPC-SP1 to remove chlorides, sulfates, zinc salts, oil, dirt, organic matter and other contaminants. Then brush blast clean the cleaned galvanized surface per SSPC-SP7 to create a slight angular surface profile (1.0 - 1.5 mils suggested) for paint adhesion. Do not fracture the galvanized finish or remove any dry film thickness during the brush blast cleaning process.

After cleaning provide a tie coat from an approved coating system that is specifically intended to be used on a galvanized surface. The tie coat shall etch the galvanized surface and prepare the surface for the top coat. Apply a top coat matching the specified color. Utilize a contrasting color for the tie and top coats. Use a pre-approved top coat that is resistant to the effects of the sun, and is suitable for use in a marine environment. Paint the various decorative fence components with the tie and top coats before final assembly of the fence panels. Do not damage the painted surface during panel assembly or fence installation.

Use one of the qualified paint sources and products given below. An equivalent system may be used with the written approval of the engineer.

| Producer | Coat | Products | Dry Film Minimum Thickness (mils) | Minimum Time Between Coats (hours) |
|---|---|---|---|---|
| Sherwin Williams<br>1051 Perimeter Drive,<br>Suite 710<br>Schaumburg, IL 60173<br>(847) 330-1562 | Tie | Recoatable Epoxy Primer B67-5 Series/B67V5 | 2.0 to 4.0 | 6 |
| | Top | Acrolon 218 HS Polyurethane, B65-650 | 2.0 to 4.0 | NA |
| Carboline<br>350 Hanley Industrial St.<br>Louis, MO 63144<br>(314) 644-1000 | Tie | Rustbond Penetrating Sealer FC | 1 | 36 |
| | Top | Carboline 133 LH | 4 | NA |
| Wasser Corporation<br>4118 B Place NW<br>Suite B<br>Auburn, WA 98001 | Tie | MC-Ferrox B 100 | 3.0 to 5.0 | 8 |
| | Top | MC-Luster 100 | 2.0 to 4.0 | NA |

**B.3 Color**

Match Federal Color 27038 – Black, for the finished color for the coating system for decorative fencing.

**C Construction**

Provide shop drawings in accordance to the requirements of standard spec 506.3.2. Provide shop drawings containing material sizes and types, weld sizes and locations, and all necessary details, dimensions, and information to allow fabrication of the fence in conformance with the requirements of the contract. Obtain shop drawing review and acceptance prior to beginning fabrication.

Provide a full sized painted 6-foot by 10-foot long fence test panel. Deliver the test panel to the job site within 60 days of the award of the contract. Unload and set up the test panel in an area designated by the engineer. Obtain test panel acceptance prior to beginning fabrication of fences.

During construction and at the time of delivery the engineer will inspect the frame components. Obtain engineer acceptance of the product after the delivery is unloaded on the site. After the product is unloaded, signify in writing that the fence was received in acceptable condition per the engineer's inspection. Any damage to the fence panels after the acceptable delivery will be the responsibility of the installation contractor.

Conform all welding to the applicable requirements of standard spec 506. Obtain the approval of the engineer prior to any field welding, field cutting, or drilling.

Minimize the number and size of touch-up spots during construction. Follow the manufacturer's recommendations for damaged area repairs. Final acceptance will not be granted without engineer approval of the field paint appearance.

Provide the engineer with the name, address, and phone number of a representative of the fence fabricator for future coordination.

During handling, protect finish coating from damage. If damaged during handling, the fencing may be rejected by the engineer or engineer may direct the fabricator to repair the finish in accordance to the manufacturer's recommendations. Provide the engineer a copy of the manufacturer's recommended repair procedure and materials before repairing damaged coatings.

For ground mounted fencing install foundation sleeves when shown on the plan or where the fence foundation is within the soil reinforced zone of adjacent mechanically stabilized earth (MSE) retaining walls. Coordinate and install fence post foundation sleeves during MSE wall construction.

Set ground mounted post as shown in the plans and according to standard spec 616.3.3.2.

Erect fence fabric according to standard spec 616.3.3.3.

**D Measurement**
The department will measure Fence Decorative HAST Structure Mounted and Fence Decorative HAST Ground Mounted by the linear foot, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.4411 | Fence Decorative HAST Structure Mounted | LF |
| SPV.0090.0605 | Fence Decorative HAST Ground Mounted | LF |

Payment is full compensation for cleaning, galvanizing, welding, fabricating, polymer-coating woven wire fabric, painting, assembling, furnishing, delivering and installing fence components, test panel; excavating or installing foundation post sleeves, concrete post foundations; providing and installing anchor bolts and anchor plates; for preparing shop drawings and for repairing zinc coating or damaged areas.

## 335. Install Piezoelectric Axle Sensor Slots, Item SPV.0090.2001.

**A Description**
This special provision describes installing construction slots in existing asphaltic or concrete pavements as show on the plans and as hereinafter provided.

**B (Vacant)**

**C Construction**
Construct slots in accordance to the requirements of standard spec 652.3.1.5 and as herein provided. Construct slots according to the piezoelectric installation instructions at www.meas-spec.com.

**D Measurement**
The department will measure Install Piezoelectric Axle Sensor Slots in length by the linear foot, acceptably completed.

**E Payment**
The department will pay for the measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.2001 | Install Piezoelectric Axle Sensor Slots | LF |

The payment is full compensation for installing piezoelectric axle sensor slots; for furnishing all sawing; for chipping if required; for removal and disposal of surplus material; and for cleaning the slot.

## 336. Loop Detector Lead In Cable Special, Item SPV.0090.2002.

### A Description

This special provision describes the furnishing and installing Loop Detector Lead In Cable Special for the automatic traffic recorder (ATR) station.

### B Materials

Furnish shielded, 12 AWG, 2 conductor, polyethylene insulated, with drain wire, conforming to IMSA Specification Number 50-2 for loop detector lead in cable.

### C Construction

Install loop detector lead in cable, splice loop and lead in cable together in the pull box, and connect the lead in cable to proper terminals in the control cabinet.

Install the loop detector lead in cable in electrical conduit furnished under other bid items. For lead in cable from the pull box to the control cabinet, install lead in cable in conduit either with or without other cables. Do not provide an extra length of loop lead in cable in pull boxes. For each loop, use a separate lead in cable to the control cabinet. Cut the drain wire flush with the lead in cable jacket.

Splice cables using cast in place splice kits from an approved manufacturer. Make splices as soon as possible after installing loop detector lead in cable.

If unable to splice to the lead in cable the day installing the wire, seal the cable ends with tar or electrical sealant to keep water out of the insulating jacket of the cable. If water does enter the insulating jacket, remove the cable and replace with new cable at no expense to the department.

A splice consists of a non-insulated butt connector, connecting one loop wire to one loop lead-in cable wire. Crimp and solder this connection with electrical multi-flux core. Crimp connect and solder the second 2 wires in the same manner. Half lap tape the solder connections with an approved rubber high voltage tape. Half lap tape each connection with an approved vinyl electrical tape and insulate connections from each other before placing in the splice kit. Coat each connection with an approved electrical varnish and allow the coating to dry. After drying, install the splice capsule conforming to the manufacturer's instructions.

If the engineer directs, open one randomly selected loop detector splice and inspect it for compliance with installation specifications. If the engineer determines the splice is non-compliant with the specifications, replace all loop detector splices on the project at no expense to the department.

After splicing the loop wire to the loop lead in cable, measure inductance, ground resistance, and wire resistance at the cabinet end of the lead in cable. Furnish a copy of the readings to the engineer for evaluation.

**D Measurement**
The department will measure Loop Detector Lead In Cable Special by the linear foot, acceptably completed, measured from the splice with the loop lead in wire along the centerline of the conduit to its connection with terminals in the control cabinet.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.2002 | Loop Detector Lead In Cable Special | LF |

Payment for Loop Detector Lead in Cable is full compensation for providing the lead-in cable; for making necessary cabinet connections; and for furnishing splice kits and splicing to the loop detector wire.

## 337. Piling Sleeves, Item SPV.0090.4415.

**A Description**
The work under this item consists of furnishing and installing a corrugated steel piling sleeve or pile wrap in the reinforced earth zone of mechanically stabilized earth (MSE) retaining walls and other locations shown in the plans. Perform work in accordance to pertinent portions of standard specs 520 and 521, the plans, and as herein after provided

**B Materials**
**B.1 Pipe Sleeves**
The piling sleeve must meet the requirements of standard spec 521.2.2 for corrugated steel pipe.

**B.2 Pile Wrap**
As an alternative to pipe sleeves and if accepted by the engineer, provide a pile wrap that completely encases the perimeter of the pile and separates the pile from the surrounding soil. The provided pile wrap product shall be specifically intended to reduce or eliminate down drag loads on driven piles. Submit proposed pile wrap product data sheets and installation requirements to the engineer for acceptance.

**C Construction**
Set the piling sleeve within 1 inch of the required position indicated on the plans prior to placing the reinforced earth. Brace sleeve to maintain position within 2 inches of required position as backfilling proceeds. Place soil reinforcing mats around sleeve.

Is using pile wrap in lieu of pipe sleeves, install the pile wrap on the top portion of the piles that will be in the MSE soil reinforced zone or other limits shown on the plans prior placing the reinforced earth backfill around the piles. Install the pile wrap and place backfill around the wrapped pile in accordance to the pile wrap manufacturer's installation requirements and recommendations.

Any damage that would hinder the installation of a HP pile must be corrected prior to placing any additional reinforced earth.

After completion of pile installation inside a piling sleeve, backfill the void space around the pile within the sleeve with sand or other approved materials.

**D Measurement**
The department will measure Piling Sleeves by the linear foot, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.4415 | Piling Sleeves | LF |

Payment is full compensation for furnishing and installing the piling sleeve or pile wrap; and for furnishing and placing backfill inside the sleeve after pile installation.

## 338. Foundation Drilling Special, Item SPV.0090.4420.

**A Description**
Work under this item consists of drilling or otherwise excavating holes for the subsequent installation of soldier piles and construction of concrete masonry soldier pile footings. Perform work in accordance to pertinent parts of the standard specifications, the plans, and these special provisions.

**B (Vacant)**

**C Construction**
**C1 General**
The contractor is responsible for drilling or excavating and maintaining a stable open hole for subsequent installation of soldier piles and construction of concrete masonry soldier pile footings. The subsurface conditions vary across the project site and are not necessarily the same along the length of each retaining wall in the project. Anticipate the possibility of encountering randomly interlaced seams of loose, permeable sand or gravel of substantial thickness situated within glacial clays and till deposits; saturated soils; ground water; isolated cobbles or boulders; and nested cobbles and boulders at any concrete masonry solider pile footing location when selecting equipment and methods for constructing the holes. Partial or full depth temporary casing, slurry or a combination thereof, may be required to maintain the stability of the excavated drill hole prior to placement of the soldier pile in the hole and filling the hole with concrete.

The contractor is strongly advised to obtain and review the Geotechnical Exploration and Foundation Evaluation Reports for the applicable retaining wall structure for which concrete masonry soldier pile footings are being constructed. See article “Geotechnical Investigation Information” in these special provisions for information on obtaining geotechnical reports

Perform all work in accordance to the rules and regulations of the local, state, and federal governing authorities having jurisdiction over the project site.

**C2 Installation Plan Submittal**
Determine the proper means, methods, and procedure for accomplishing the work as specified herein and on the plans. Submit the proposed method for foundation drilling before beginning construction. If slurry is proposed to be used for excavation stabilization, the submitted installation plan must include all details related to use of slurry including:

- Type: Include slurry manufacture literature and mixing instructions.
- Equipment: Storage /mixing tanks, containment vessels, pumps, mixers, hoses, valves.
- Operations: Slurry mixing, pumping, containment, and recovery procedures.
- Quality Control: Slurry quality control procedures and testing during construction.

**C3 Excavation**
Bore or otherwise excavate holes to the diameter and depth as shown on the plans. If necessary, use temporary casing, slurry or alternative methods during drilling methods to maintain a stable open hole. Do not leave excavated, uncased holes open overnight prior to filling with concrete. If bentonite or equivalent slurry is used to maintain an open hole, prevent spillage of the slurry onto adjacent roadways or into adjacent waterways. Locate the soldier pile holes to within the following tolerances:

| | |
|---|---|
| Horizontal Location | 3 inch |
| Vertical Location | 1 inch |
| Vertical Alignment | 1/8 inch/ft |
| Hole Diameter | 30 inch; -0 inch; +2 inch |

Provide equipment for checking the dimensions and alignment of each shaft. Remove loose material from the bottom of the shaft. For holes drilled or excavated without slurry, no more than 3 inches of standing water is permitted in the bottom of the drilled hole prior to beginning solider pile installation and immediately prior to placing concrete masonry in the hole around the solider pile.

**C4 Obstructions**
Obstructions are defined as man-made objects that when encountered, stop or significantly impede downward progress of the excavation to less than 12-inches for 60 minutes or longer using conventional excavation techniques or augers operating at normal power, torque and downward thrust. Obstructions include man-made objects and may include, but are not limited to old concrete foundations, piling, abandoned utilities or buried pavements. Obstructions are further classified as “known obstructions” which are identified on the plans, and “unknown obstructions” that may be encountered but are not identified on the plans.

Employ special tools and/or procedures as necessary when obstructions are encountered and the contractor cannot advance the excavation more than 12-inches in 60 minutes using conventional rock augers fitted with teeth, drilling buckets, or under reaming tools operating at normal power, torque, and down thrust. Clear the obstructions in such a manner so as not to compromise the sidewall integrity or stability of the drilled, open hole. Special procedures and tools that may be required include, but are not limited to; chisels, breakers, core barrels, air hammer tools, and hand excavation. Other methods for obstruction removal such as temporary casing or hole diameter increase can be employed to aid in the removal if acceptable to the engineer. Blasting is not permitted.

Natural deposits, including boulders, cobbles, nested cobbles and other deposits may be encountered that impede the excavation to less than 12-inches for 60 minutes or longer as noted above for obstructions. Natural deposits, regardless of makeup, depth, configuration, and consistency are not classified as obstructions as defined in this special provision or in the special provision Obstructions Foundation Drilling included in this contract.

**D Measurement**
The department will measure Foundation Drilling Special by the linear foot, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.4420 | Foundation Drilling Special | LF |

Payment is full compensation for drilling foundations; for drilling or otherwise excavating holes, clearing natural and known man-made obstructions, and for furnishing temporary casings, slurry or alternative hole stabilization methods.

Removal of unknown man-made subsurface obstructions for Foundation Drilling Special will be measured and paid for separately under the bid item, Obstructions Foundation Drilling included in the contract.

## 339. Wall Secant Pile 47.24-Inch, Item SPV.0090.4425.

**A Description**
This special provision describes installing overlapping drilled shafts to form a secant pile retaining wall as shown on the plans.

**A.1 Qualifications of the Contractor**
The contractor performing the work described in these special provisions must have drilled shaft project(s) successfully completed within the last five years. The contractor must submit a list outlining their experience on at least five projects where they have successfully completed drilled shaft construction, including one project completed within the last five years. A minimum of two of the five projects must be tangent or secant pile wall projects. A separate wall project is defined as a tangent or secant pile wall or walls

having a total of at least 3000 square feet of total wall area. The project experience must include at least one project completed in soil and groundwater conditions similar to those anticipated for this project. The project experience must include advancing the drilled shafts to a depth of at least 30 feet below the original ground surface. At least one project must show evidence of permanence with a five-year minimum age. The project experience documentation for each project must include a brief project description, detail the size of the shafts, construction methods used during installation, methods used for wall stabilization, local soil conditions, actual construction time and contact information consisting of an individual's name and current phone number. Contacts must be capable of verifying project participation.

The contractor must submit staff experience records of the engineer, drill operators, and on-site supervisors and crew chiefs who will be assigned to the project. The staff records must contain a summary of each individual's experience and it must be complete enough for the engineer to determine whether each individual has satisfied the following qualifications.

The contractor must assign an engineer to supervise the work who has at least eight years of drilled shaft experience and who has completed at least one successful secant pile or tangent pile retaining wall project. The assigned engineer's project experience must include at least one project completed in soil and groundwater conditions similar to those anticipated for this project. The contractor may not use consultants or manufacturer's representatives in order to meet the requirements of this section. Drill operators, and onsite supervisors and crew chiefs must have a minimum of one-year experience installing drilled shafts with the contractor's organization.

Submit the contractor's qualifications and staff experience records at the preconstruction meeting or 14 calendar days prior to the start of drilled shaft construction, whichever date is earlier. The engineer will accept or reject the contractor's qualifications and staff experience records within 14 calendar days after receipt of the submission. Do not start work on any secant pile retaining walls until acceptance of the contractor's qualifications, staff experience, and drilled shaft installation plan is given by the engineer. The engineer may suspend the secant pile work if the contractor substitutes unqualified personnel for accepted personnel during construction. If work is suspended due to the substitution of unqualified personnel, the adjustment in contract time resulting from the suspension of work will not be allowed.

## B Materials

### B.1 General

Concrete, drilling fluid, reinforcement and formwork shall be in accordance to the requirements of QMP Drilled Shafts, standard specifications, as shown on the plans, and as hereinafter provided.

In the event that the provisions of other specification clauses cause ambiguity or conflict with these special provisions, these special provisions shall take precedence unless otherwise accepted by the engineer.

**B.2 Equipment**

Equipment used for excavation, drilling, and cleaning operations shall be designed and intended to be used in conjunction with a full depth temporary casing for drilled shaft installation. The equipment shall be capable of installing and extracting a full depth temporary casing by means of a drill rig mounted overhead rotary drive or hydraulic oscillator, powered by the drill rig. The equipment shall have adequate capacity; including power, torque, and down thrust to install and extract a full depth temporary casing and excavate a hole to a depth equal to the maximum depth of the drilled shafts shown in the plans plus 15 feet, or plus 20 percent of their maximum depth, whichever is greater. Anticipate and make available at the job site all equipment necessary and essential to penetrate soft and hard soils, as well as cobbles and boulders and unidentified man-made obstructions, during the construction of the drilled shafts.

The equipment must be capable of advancing the temporary casing a minimum of 5-feet ahead of the excavation inside the casing until the shaft tip elevation is reached. No excavation ahead of the casing shall be permitted without the engineer's approval.

The overhead rotary drive equipment shall be capable of installing and extracting the full depth temporary casing by means of rotational or oscillatory motion. Installation or removal of temporary casing by impact driving or vibration is not permitted. Advancing and installing the temporary casing by means of excavation ahead of the casing is not permitted.

Where hard soils, or other material including natural or man-made obstructions are encountered and cannot be drilled using conventional earth or rock augers, drilling buckets, and/or over reaming tools, provide drilling equipment including but not limited to rock core barrels, rock tools, down the hole hammer, chisels, air tools, or any other equipment necessary to advance the drilled shaft excavation to the depth and size as shown on the plans.

When applicable, or required by the engineer, provide equipment that produces a stable slurry suspension, mechanical agitation, and a pipeline or other safe methods of transporting the slurry to the drilled shaft.

**B.3 Temporary Casing**

Temporary casing shall be steel; rigid, smooth, clean, watertight, and of ample strength to withstand both handling and installation stresses and the pressure of both concrete and the surrounding earth materials. Temporary casing must be of sufficient length to provide temporary casing the full length of excavation for all drilled shafts. Segmented casing, if used, must be segmented using flush bolted, casing joints. Telescopic casing is not permitted. The diameter of casing shall not be less than the specified size of the drilled shaft. All casing diameters shown on the plans refer to outside diameter, O.D. dimensions.

**B.4 Temporary Working Surface**

Fill material, if required, to create a working surface for wall construction can be any suitable material approved by the engineer containing no logs, stumps, brush, perishables,

or other materials such as stone or broken concrete that may affect the drilling of the shafts. Material that will remain permanently shall consist only of appropriate embankment fill when placed in association with a roadway, conforming to the requirements of standard spec 207.2.

**B.5 Reinforcing Steel and Spacers**

Deformed reinforcing bars shall comply with the size, dimension, spacing, and details shown on the plans. In addition, they shall conform to AASHTO M31, Grade 60, and all the pertinent requirements of standard spec 505. Non-corrosive wheel type spacers and boots shall be used to properly position the reinforcing steel. All reinforcing steel shall be 100% wire tied between the vertical reinforcement and ties.

**B.6 Guide Walls**

Provide steel plate template at each secant pile location to accurately locate and maintain the position of the wall as shown on the plans. Provide concrete, reinforcement and formwork for guide walls in accordance to the requirements of standard specs 501, 502 and 505 and as hereinafter provided.

**B.7 Crosshole Sonic Logging (CSL) Tubes**

Access tubes for CSL testing shall be 2 inches I.D. schedule 40 steel pipe conforming to ASTM A 53, Grade A or B, Type E, F, or S. Pipes shall have a round, regular internal diameter, free of defects or obstructions; including any defect at the pipe joints, to permit the free unobstructed passage of source and receiver probes. Each tube or steel pipe shall be fitted with a watertight shoe onto the bottom and a removable cap at the top. Both, the shoe and cap shall be watertight and free from corrosion. The internal and external faces of the CSL tubes shall be clean to ensure passage of the probes and produce a good bond with the concrete.

**C Construction**

**C.1 Drilled Shaft Installation Plan**

**C.1.1 General**

Prepare and submit a Drilled Shaft Installation Plan at the preconstruction meeting or at least 14 calendar days prior to beginning drilled shaft construction, whichever date is earlier. Submit the Drilled Shaft Installation Plan to the engineer for review. The engineer will accept the plan as submitted or return the plan with requested revisions. The initial acceptance of the engineer shall be considered a preliminary acceptance with final acceptance pending the successful completion and acceptance of the Secant Pile Trial Wall Panel included in the contract. Do not start any production drilled shaft installation until the contractor and engineer agree to and the engineer accepts the Drilled Shaft Installation Plan. Acceptance of the installation plan does not relieve the contractor of responsibility for successful completion of the drilled shafts.

**C.1.2 Subsurface Conditions**

The subsurface conditions vary across the project site and are not necessarily the same along the length of structures containing secant pile walls. Anticipate the possibility of encountering loose permeable sand or gravel seams of substantial thickness interlaced

randomly within glacial clay and till deposits, saturated soils and ground water, isolated cobbles or boulders, and nestled cobbles and boulders while excavating and installing secant drilled shafts along the length of secant pile wall structures within this contract.

The contractor is strongly advised to obtain and review the combined Geotechnical Exploration and Foundation Evaluation Report for the wall structure for which the secant pile wall is being constructed. See article "Geotechnical Investigation Information" in these special provisions for information on obtaining the geotechnical report.

**C.1.3 Submittals**

The submitted Drilled Shaft Installation Plan shall include the following:

a. **Job Site Visit**. Acknowledge that the job site was visited to verify the site conditions with regard to entrance, access, overhead lines, subsurface features, clearing and grubbing, permitting, and collecting all information necessary to plan and execute the installation of the drilled shafts.
b. **Plan to Protect Existing Structures and Facilities**. Outline the steps to be taken during drilled shaft installation to protect adjacent or nearby structures and utilities.
c. **Low Overhead Clearance Provisions.** Outline the equipment to be used and special steps to be implemented to safely install the secant pile drilled shafts under the existing overhead utility lines shown on the plans.
d. **Details of Environmental Control Procedures**. Provide plan to prevent loss of slurry or concrete into waterways, project areas, or protected areas. Detail method to ensure the compliance with state and federal environmental regulations during drilled shaft construction.
e. **List of Proposed Equipment**. Include details of proposed templates; number and sizes of cranes; number and sizes of drills, include rotary torque, crowd force drills, and maximum drilling depth; diameter, length, and reach of augers, bailing buckets, guide walls, templates, and roller bits; cleaning equipment including cleaning buckets, submersible pumps, or air-lifted pumps; size of de-sanding equipment and slurry pumps; soil/rock-coring sampling equipment; inspecting drilled shaft apparatus; length and diameter of tremie or size of concrete pumps; size, length, and thickness of casings; over reaming equipment; and all relevant equipment necessary to complete the drilled shaft installation. Acceptance of the installation plan by the department does not relieve the contractor responsibility to provide other equipment, if necessary, to achieve satisfactory wall installations meeting the requirements of this special provision.
f. **Details of Guide Wall Design and Installation.** Provide details of required guide wall design and construction.
g. **Details of Sequence of Drilled Shaft Installation and Time for Construction Operations**. Include a layout of the drilled shaft installation sequence and setting template(s). Time for installing full depth temporary casing, sealing casing, excavation and/or drilling time, drilled shaft cleaning, rock coring, drilled shaft inspection, concrete placement. Consider the effect of construction operations of one drilled shaft onto the adjacent drilled shaft(s) and utilities and avoid construction conflicts that will affect the quality or integrity of the completed work. Indicate when and what construction sequence modifications shall be performed

under atypical situations, i.e, weekend or holiday shutdowns, unanticipated shutdowns due to equipment issues, etc.

h. **Proposed Drilled Shaft Installation Procedure(s)**. Provide details of the proposed shaft installation procedures, including coring or drilling rock or obstructions or steep sloping surfaces, when required, and meeting the minimum installation requirements set forth in subsection C.3. Method for identification of the competent or bearing material before finalizing the excavation. Method for monitoring verticality of the drilled shaft walls during excavation, and details of proposed corrective measures to be implemented for shafts out of tolerance. Details of the methods and means of preventing displacement of the casing and/or drilled shaft during installation.

i. **Details of Slurry Operations.** Include slurry type, methods to mix, circulation, de-sanding, and test the slurry to comply with these special provisions. Submit proposed laboratories for testing and documenting test results.

j. **Inspection and Cleaning**. Methods to clean and inspect the drilled shaft excavation prior to reinforcement placement.

k. **Crosshole Sonic Logging (CSL).** Method to install and secure the CSL pipes to the reinforcing cage or steel core, along with the proposed selection of pipe and size.

l. **Details of Reinforcement Steel Placement During Construction**. Include methods to ensure cage centering and cover; proper cage orientation, cage integrity while lifted during placement, number of cranes, number of lift points, and number of spreader bars; number and location of bottom and side spacers; cage support; and tie downs during concrete placement.

m. **Concrete Placement Plan**. The purpose of the Concrete Placement Plan is to ensure that a sufficient quantity of concrete is at the job site or in transit to the job site so that the entire pour can be done without delay. Include location of the concrete plant, number of trucks, estimated delivery times, estimated time between trucks, and number of trucks at the site before placement begins. Indicate the use of tremie or concrete pump lines and details of the seal to be used at the bottom end of the tremie or concrete pump line. Breakdowns of concrete plants, trucks, or traffic problems shall be considered under this Concrete Placement Plan. The contractor shall be aware of and account for batch, travel, and concrete placement times. Include an estimate of the concrete placement time per drilled shaft. When applicable, detail excavation to grade and finishing of the drilled shafts.

n. **Casing Removal**. Include the details and means by which the contractor intends to remove full depth temporary casings and provide information about staged temporary casing removal when applicable.

o. **Methods of Handling and Disposal of Spoil Excavation, Waste Slurry, Waste Concrete, and Drilled Shaft Cutoffs**. Present sufficient details to the engineer to evaluate the adequacy and compliance of the contractor's methods of disposal with the standard specifications, including all related environmental permits and local regulations.

p. **Other Information** requested on the plans or by the engineer.

### C.1.4 Acceptance

The department will evaluate the Drilled Shaft Installation Plan for conformance with the requirements of these special provisions. Within 14 calendar days after receipt of the Drilled Shaft Installation Plan, the engineer will notify the contractor of the preliminary acceptance of the plan, or if additional information and/or changes are required. Any unacceptable part of the Installation Plan will require resubmission. The contractor must resubmit the drilled shaft installation plan for evaluation and review with the necessary changes or additional information provided. The engineer will provide a written notice of preliminary acceptance or rejection of contractor's resubmitted Drilled Shaft Installation Plan within 14 calendar days after its receipt. The accepted contractor's Drilled Shaft Installation Plan will become final after the successful completion and acceptance of the Secant Pile Trial Wall Panel demonstrating satisfactory performance in the field of the contractor's Drilled Shaft Installation Plan.

After assessment or reassessment of the Drilled Shaft Installation Plan and the Secant Pile Trial Wall Panel have been made and the engineer has accepted both, no changes to the Drilled Shaft Installation plan can be made without written consent of the engineer.

## C.2 Secant Pile Trial Wall Panel

After the Drilled Shaft Installation Plan has been accepted, consecutive drilled shafts forming a non-production, secant pile trial wall panel shall be constructed by the contractor or subcontractor who will perform the drilled shaft production work for the contract. Construction shall be in accordance to the submitted Secant Pile Trial Wall Panel and this special provision. During secant pile trial wall panel construction, the contractor must adhere to and demonstrate the adequacy of the submitted Drilled Shaft Installation Plan.

Construction of the secant pile trial wall panel will be used to determine if the contractor's methods, equipment, personnel, and proposed procedures are suitable to reliably produce stable drilled shaft excavations and secant walls that meet the requirements of these special provisions. CSL tests may be performed by the engineer, as part of the evaluation of each trial panel. Revise construction methods and equipment as necessary during this stage or at any time during the installation of production shafts to satisfactorily complete the wall construction in accordance to these special provisions.

Failure of the contractor to demonstrate the adequacy of the installation procedure(s) or equipment shall cause the engineer to require appropriate modifications as necessary. Comply to satisfactorily demonstrate the adequacy of the proposed method(s) or equipment, or construct additional secant pile trial wall panel(s) as indicated by the engineer at no additional cost for the department.

## C.3 Drilled Shaft Installation

### C.3.1 General

Carry out the work in accordance to the accepted drilled shaft installation plan and as demonstrated during installation of the trial secant pile wall panel. The resulting installation plan shall include length of full depth temporary casing, details of the

constituent materials of any drilling fluid or means used for stabilization of the bottom of the excavation, the method of inspection, details of the concrete design mix, concreting method, the minimum time between the completion of one shaft and the commencement of the next, and the pattern of construction.

Ensure that damage does not occur to the completed shafts as a result of work on adjacent shafts. Submit to the engineer a drilled shaft installation sequence. The proposed sequence and timing of shaft installation shall be such that the installation work will not cause any damage to adjacent shafts. The shaft installation shall not commence until acceptance of the engineer has been obtained.

### C.3.2 Guide Walls

The design and construction of guide walls is the responsibility of the contractor and shall take into account the shaft size, ground conditions and equipment used on site to ensure stability and control tolerances. The minimum depth of concrete guide walls shall be 4 feet, and the minimum shoulder width shall be 1.5 feet. Larger size guide walls may be required if the surface soils are loose or otherwise of insufficient strength to prevent movement of the guide walls during construction or if drilled shafts are placed using minimum sized guide walls and do not meet required positional tolerances.

### C.3.3 Temporary Working Surface

Use a temporary working surface to provide a level surface at the top of shafts for drilling where needed.

### C.3.4 Forcible Correction

Where shafts have not been positioned within the specified limits no method of forcible correction will be permitted.

### C.3.5 Records

Keep a work record of all shafts installed. Give a copy of the record including each day to the engineer within 24 hours of that day's work being completed. The engineer will review and agree to the daily record form format before drilled shaft works commence. Incorporate any comment by the engineer into the record form. Note all unexpected drilling or installation conditions in the records.

### C.3.6 Methods of Drilled Shaft Installation

#### C.3.6.1 General

The temporary casing installation method and concrete placement in the wet using a tremie pipe shall be used to produce a sound and durable secant pile wall free of defects. When a particular installation method is required in the special provisions, only that method of construction shall be used. The use of a permanent casing method is not permitted. Submit to the engineer for acceptance his selected method of construction in the Drilled Shaft Installation Plan described in these special provisions.

The use of full length temporary casing, with the use of water or slurry, is required for the installation of all drilled shafts on the project. Full depth temporary casing shall be installed by using overhead rotary drive equipment or by using hydraulic oscillating equipment specifically intended for temporary casing installation and extraction. Installation of full depth temporary casing by means of driving or vibrating is not permitted. Advancing and installing casing by means of excavation ahead of the casing is not permitted. During temporary casing installation and shaft excavation, advance the tip of the temporary casing a minimum of 5 feet ahead of the tip of the excavation, until the bottom of the excavation is reached.

After the temporary casing is in place, excavate inside the casing, while keeping the shaft full of water or slurry, to the planned shaft tip elevation using the wet excavation techniques described below. Clean the bottom of the excavation; test the drilling fluid for compliance with these special provisions. Before extracting the temporary casing, ensure that the level of fresh concrete inside the casing is at such level that the pressure of its hydrostatic head displaces up and out the fluid trapped in the annular space between the casing and the drilled shaft wall.

**C.3.6.2 Dry Installation Method**
The dry method of shaft installation is not permitted.

**C.3.6.3 Temporary Casing Installation Method**
The temporary casing method of shaft installation consists of supporting the shaft excavation by means of full depth temporary casing that is advanced a minimum of 5 feet ahead of the excavation until the drilled shaft tip is reached. This includes excavating, removing, and cleaning all accumulated loose material from within the cased excavation, placing the reinforcement cage, and placing the shaft concrete in the wet excavation. The concrete cannot be placed into the wet excavation using free fall. Concrete shall be placed under water in wet excavation using proper tremie procedures to direct the concrete under the water inside the shaft excavation and displace the water.

**C.3.6.4 Wet Installation Method**
The wet installation method consists of drilled shaft installation by means of full depth temporary casing in conjunction with the use of slurry, drilling fluid, or water to maintain stability against heave and blow-in in the bottom of the excavation. Use the wet installation method for all drilled secant pile shafts in the contract. When using the wet method below the groundwater table, all drilled shaft operations shall be accomplished while maintaining a positive head of fluid of sufficient depth above the water table to avoid heaving or blow-in of the bottom of the excavation.

**C.3.6.5 Permanent Casing Method**
Do not use the permanent casing method.

### C.3.7 Excavations

#### C.3.7.1 General

Excavations required for the drilled shafts shall be performed through whatever materials are encountered to the dimensions and elevations shown in the plans, or as directed by the engineer. The excavation and installation method shall be suitable for the intended results and materials encountered. Blasting is not permitted.

Maintain a construction log during the drilled shaft excavation. The construction log will include information such as ground elevation, ground water elevation, sequence number, method of installation, machines and tools employed, drilling fluids employed, drilling times, excavated materials and their particular elevations, soil samples and their particular elevations, and all other information relevant to the excavation process that will assist the engineer in evaluating the foundation. Information shall also include proposed methods for disposal of excavated material and slurry in accordance to state and local environmental regulations, codes and ordinances, the standard specifications, or as directed by the engineer.

#### C.3.7.2 Templates and Guide Walls

Templates are required for installation of all scant pile wall foundations to aid in achieving position and alignment of the installed drilled shafts within specified tolerances. Guide walls are also required for the installation of all secant pile drilled shafts to aid in achieving specified tolerances for location and verticality of the installed drilled shafts.

#### C.3.7.3 Protection of Existing Structures

Take all reasonable precautions to prevent damage to existing structures and utilities. These measures shall include, but are not limited to, subsidence control during installation of temporary casings or excavation inside temporary casings.

Where drilled shafts are to be installed in conjunction with embankment placement, drilled shafts shall be constructed after placement of the fill, unless otherwise shown in the plans, or accepted by the engineer. If fill is required to be placed after completion of the drilled shafts, the footing cap shall be done, as closely as possible, after the fill is in placed and compacted to final grade leaving only the space necessary for the construction of the caps.

#### C.3.7.4 Drilled Shaft Excavation

Provide the necessary equipment to remove and dispose of all materials encountered in the drilled shaft excavation to the dimension and elevation shown on the plans, or as directed by the engineer. Contractor's excavation equipment may include but is not limited to earth augers and rotary drills designed to work within full depth temporary casing. Unless otherwise shown on the plans, the drilled shaft excavations shall be vertical bored holes extending from the ground surface down to design tip elevation.

#### C.3.7.5 Obstructions

Obstructions are defined as man-made objects that when encountered, stop or significantly impede downward progress of the temporary casing installation or excavation to less than 12-inches for 60 minutes or longer under normal applied thrust and torque. Obstructions

include man-made objects and may include, but are not limited to old concrete foundations, piling, abandoned utilities or buried pavements. Obstructions are further classified as “known obstructions” which are identified on the plans, and “unknown obstructions” that may be encountered but are not identified on the plans.

Employ special tools and/or procedures as necessary when obstructions are encountered and the contractor cannot advance the excavation more than 12-inches in 60 minutes using conventional rock augers fitted with teeth, drilling buckets, or under reaming tools operating at normal power, torque, and down thrust. Special procedures and tools that may be required, but are not limited to; chisels, breakers, core barrels, air hammer tools, and hand excavation. Other methods for obstruction removal such as temporary casing or hole diameter increase can be employed to aid in the removal if acceptable to the engineer. Blasting is not permitted.

Natural deposits, including boulders, cobbles, nested cobbles and other deposits may be encountered that impede the installation and advancement of the temporary casing and excavation to less than 12-inches for 60 minutes or longer as noted above for obstructions. Natural deposits, regardless of makeup, depth, configuration, and consistency are not classified as obstructions as defined in this special provision or in the special provision Obstructions Wall Secant Pile included in the contract.

**C.3.7.6 Lost Tools**

Drilling tools that are lost in the excavation shall not be considered obstructions and shall be promptly removed. All costs due to removal of lost tools shall be borne by the contractor including costs associated with hole degradation during removal operations or time while the hole remains open.

**C.3.7.7 Inspections and Cleanliness of Excavation**

Provide the details of drilled shaft inspection and cleanliness within the Drilled Shaft Installation Plan, required by subsection C.1.3 of this specification. Provide equipment and tools for checking the dimensions and alignment of each drilled shaft excavation, and shall coordinate schedules for inspection of the excavation with the engineer. Determine dimensions, alignment, and final depth of the drilled shafts after final cleaning. When applicable, provide safe access and egress to the engineer for inspection of the walls and bottom of the drilled shaft excavation prior to placement of the rebar cage or steel core section and concrete. After the drilled shaft excavation has been prepared for inspection, notify the engineer. The cleanliness and the bearing surface of the drilled shafts will be evaluated and accepted by the engineer. Unless the engineer specifies otherwise, the contractor's cleaning operation shall be considered sufficient when no more that 50 percent of the bottom area of each shaft has less than 1/2-inch of sediment or debris at the time of hole acceptance just prior to steel positioning and concrete placement. The maximum depth of sediment or any debris at any location on the bottom of the shaft shall not exceed 1 1/2-inch at the time of concrete placement.

### C.3.7.8 Safety

Do not permit any worker to enter the drilled shaft excavation for any reason unless a suitable casing has been installed, the water level has been lowered and stabilized below the level to be occupied, and suitable safety equipment and procedures have been provided to the personnel entering the excavation which includes OSHA certification for confined-entry-space.

### C.3.7.9 Record Information

Provide to the department the drilled shaft excavation records and report any unusual observation to the engineer within 8 hours of discovery. Submit a draft of this form for each completed drilled shaft within 24 hours of shaft completion, and submit the final form within 2 weeks. Submit relevant information on a daily basis, or more frequently when variations occur, or as otherwise required by the engineer.

Report the drilled shaft construction progress in accordance to "Inspection and Reporting Forms," Drilled Shafts: Publication No. FHWA - IF-99-025, Appendix F, pages F-1 through F- 8.

### C.3.8 Placement of Reinforcing Steel Cage

Prior to placement of the reinforcing steel and concrete, if slurry fluid was employed during the installation of the drilled shaft, test the slurry for compliance with this specification as described in the QMP, Drilled Shafts special provision. Slurry Tests shall be performed along the shaft and at the bottom of the shaft. Adjust the slurry properties as necessary to meet the specifications.

Prior to placement of the reinforcing steel and concrete, ensure that the C.3.7.7 cleanliness requirements are met.

Concrete or non-corrosive spacers shall be used at sufficient intervals not exceeding 10 feet along the reinforcement cage or the steel core. A minimum of 4 spacers shall be spaced evenly around the circumference of any shaft with a maximum space around the shaft circumference of 30 inches between any spacer (i.e. at any given level a 4-foot diameter shaft shall have 4 spacers). The first spacers shall be placed 1.5 feet from the bottom of the shaft with successive spacers at maximum intervals of 10 feet along the shaft. Spacers shall be of an appropriate diameter wheel to provide minimum clearance shown on the plans between the shaft excavation walls and the steel reinforcement.

### C.3.9 Concrete Placement

### C.3.9.1 General

For each secant shaft, place concrete continuously once concrete placement is started. No intermediate construction or cold joints are permitted within a single secant shaft.

Test the concrete delivered to the job site for compliance with the QMP Drill Shafts special provisions, the standard specifications and these special provisions.

### C.3.9.2 Concrete Placement Time

Place concrete within three hours after hole approval unless otherwise directed by the engineer. If the concrete is not placed within this time frame, the hole must be re-inspected and accepted by the engineer prior to concrete placement.

### C.3.9.3 Concrete Placement by Free Fall

Concrete placement in drilled shafts by free fall is not permitted.

### C.3.9.4 Concrete Placement by Tremie Pipes

Use tremie pipes to place the concrete inside the excavation. Keep the discharge end of the tremie a minimum of 7-feet below the level of the fresh concrete already placed inside the excavation to maintain a seal. The concrete shall flow into position by pressure through a steel tremie with a minimum diameter of 10-inches. Seal the bottom of the tremie using one way flap valve, before it is lowered into the wet excavation. If water/slurry enters the tremie pipe after concrete pouring has started, the tremie must be withdrawn, cleaned, resealed, and pouring restarted. If for some reason, the tremie is raised out of the fluid concrete or the concrete inside the drilled shaft drops down contaminating the tremie, completely remove and clean the tremie, then replace the seal at the bottom of the tremie, and lower the tremie back as far below as possible into the already placed concrete.

### C.3.9.5 Concrete Placement by Concrete Pumps

Concrete pumps and concrete lines can be used to place concrete in drilled shafts rapidly or to deliver the concrete from a distant location. However, due to the need to disassemble the pump line to allow the removal of casing sections and potential air pockets, disruption in concrete flow, the concrete pump placement directly within the shaft is not permitted on this project. The pump must discharge the concrete into a minimum 10-inch diameter steel tremie with a bottom one way flap valve.

All pump lines and connections shall be watertight and must guide the concrete to the discharge point at the center of the rebar cage or steel core and drilled shaft excavation. The pump line may be flexible; however, inside the shaft use a minimum 10-inch diameter steel tremie pipe that can deliver the concrete in uninterrupted manner. Keep the bottom of the tremie or discharge orifice 7-feet below the surface of fluid concrete already placed to avoid sudden jumping of the pump line out of the excavation. Concreting shall continue until over pouring is evident at the top of the drilled shaft and until dark gray concrete (acceptable concrete) can be distinguished from the drilling fluid.

### C.3.9.6 Casting Level

Over pour concrete above the top of shaft cut-off level to ensure that all concrete at and below cut-off level is homogeneous and free of laitance and deleterious materials.

### C.3.9.7 Allowable Seepage Through Secant Pile Walls

Secant pile walls for retaining walls are intended to be ground water cut-off walls that retain and prevent the seepage of ground water from behind the wall.

Upon excavation and exposure of the secant wall face, repair any cracks, joints, or other defects in the exposed wall face where visible running water leaks are present exceeding 0.003 gallons per minute per square foot of exposed wall (approximately 0.4 fluid ounces per minute per square foot of exposed wall face). The intent of this provision is to limit water seepage through the secant pile wall joints to be less than any visible and measurable flow. Unacceptable measurable flow includes a regular and steady drip or accumulated surface wetness that can be observed running down the wall surface. Slight surface moisture on the exposed concrete wall face, as evidenced by damp and darker colored concrete is acceptable.

Any excavated exposed wall areas exhibiting measurable flow exceeding the limits of this article, as determined by the engineer, shall be repaired in such a manner to seal or lower the seepage through the wall to below the specified seepage limit. Submit method of repair to the engineer for acceptance prior to beginning repairs. Complete all such repairs prior to placing the cast-in-place concrete facing. Repairs, if necessary, will be at no additional cost to the department.

**C.3.10 Construction Tolerances for Individual Shafts**

Drilled shaft excavations or completed drilled shafts constructed out of the tolerance are unacceptable. The contractor is responsible for correcting to the satisfaction of the engineer all unacceptable work. Materials, construction, work, engineering analysis, and redesign necessary to complete corrections to out-of-tolerance excavations or completed drilled shafts shall be furnished to the department without either cost or time extension for the project. Comply with the following construction tolerances:

a. The front face (face closest to the cast-in-place facing) of the drilled shaft shall be initially positioned in the theoretical location as shown on the plans. The final, as constructed position of the front face of the drilled shaft shall be within a maximum of 2 inches in any direction from the theoretical position shown on the plans, unless otherwise permitted by the engineer prior to construction.
b. The vertical alignment of the drilled shaft excavation shall not vary by more than 1/16 inch per foot from plumb vertical.
c. Tolerances specified in a. and b. above are not additive. In no case shall there be a gap between secant piles. In the case that there is a gap in secant piles, develop a remedial action and submit to the engineer. Implement the engineer accepted remedial action plan at no additional cost to the department.
d. Any gap that occurs between adjacent secant drilled shafts shall be filled with grout, concrete or other methods developed by the contractor and accepted by the engineer, at no additional cost to the department.
e. If the wall is installed outside these tolerances affecting the design and appearance of the wall, develop and carry out immediate remedial measures subject to the acceptance of the engineer, at no additional cost to the department.
f. The diameter of the installed drilled shaft shall not be less than the diameter of the drilled shaft shown on the plans. Any conflicts due to a casing that is greater in diameter than the plan shaft diameter shall be remedied by the contractor. No additional compensation or schedule time shall be granted to the contractor for resolving any conflicts due to oversized casings. Employ equipment and methods

of excavation to complete the drilled shaft excavation to a planar bottom, and the cutting edges of the equipment used during the excavation shall be normal to equipment's vertical axis within a tolerance of 3/8-inch per foot of diameter. The bottom of the drilled shaft excavation shall be normal to the axis of the drilled shaft within ¾-inch per foot of drilled shaft diameter.

h. Tolerances outlined in sections a. to e. herein shall be checked and finally met by the contractor prior to placement of the reinforced rebar cage or steel core inside the shaft hole.
i. After the concrete is poured, the top elevation of the installed drilled shaft shall be within 1-inch of the top elevation of the corresponding drilled shaft on the plans, and the top of the reinforcing steel cage shall be within the positional tolerance shown on the plans. The center of the reinforcing cage shall be the center of the drilled shaft.
j. Upon excavation of the wall shafts, any concrete present due to blowouts or protrusions that will not allow for a minimum 4-inch cast-in-place facing thickness over the face of the shafts, shall be removed at the contractor's expense. Cast-in-place facing alignment shall remain, as shown on the plans. Concrete removal if required, shall be done in such a manner as to not cause damage to the remaining portions of the shaft. This concrete removal criteria applies to all shafts installed and excavated in this contract.
k. The acceptance of the shafts tolerances shall be granted only after the excavation of the walls.

### C.3.11 Non Destructive Testing Program

#### C.3.11.1 Shaft Integrity Testing (PIT)

The Pile Integrity Tester performs low strain integrity testing, alternatively called Sonic Testing, Pulse Echo, or Transient Response. The PIT can detect the presence and location of potentially dangerous defects such as cracks, necking, soil inclusions or voids and can determine pile length. The equipment and technique are well established, and specified by ASTM D5882.

Prior to beginning the PIT test, assure that the concrete top is accessible and cleaned. The test(s) will be performed by the engineer. The engineer will evaluate and analyze the PIT test results within 5 business days and provide the contractor with a response regarding the acceptability of the drilled shaft tested. The test shall be conducted on shafts that are at least 5 days old so that the concrete has attained minimum compressive strength necessary to perform the test.

#### C.3.11.2 Crosshole Sonic Logging Test

##### C.3.11.2.1 General

Crosshole Sonic Logging, (CSL), is a nondestructive testing (NDT) method that measures the time for an ultrasonic pulse to travel from a signal source inside an access tube to a receiver inside another access tube and evaluates the integrity of drilled shafts.

Install access tubes intended for Crosshole Sonic Logging CSL testing. The test(s) will be performed by the engineer. All CSL testing will be completed within 10 calendar days of concrete placement.

Prior to beginning the CSL test, ensure that the test probes can pass through and down the tubes to the bottom of every installed tube. If a tube is obstructed, the contractor, at no additional cost to the department, must core a hole within the drilled shaft and near the obstructed tube to the depth as directed by the engineer. The core shall be large enough to accommodate the probe through its full length.

The engineer will evaluate and analyze the CSL test results within 5 business days of their receipt and provide a response regarding the acceptability of the drilled shaft tested. The test shall be performed in accordance to ASTM D6760.

**C.3.11.2.2 Installation Requirements**

Drilled shafts must be fitted with CSL test tubes to evaluate their integrity as shown on the plans.

Install the access tubes or pipes as nearly parallel and far as possible from the longitudinal bars. The number of tubes to be installed per each drilled shaft diameter is as indicated in the table below:

| Drilled Shaft Diameter | Number of CSL Tubes | Tube Spacing |
|---|---|---|
| 47.24-Inches | 4 minimum | As shown in plans |

Securely attach the tubes to the interior of the reinforcement cage with a minimum concrete cover of three inches. The tubes may be attached to exterior of the cage when accepted by the engineer provided the minimum cover requirement of 3-inches over the tubes shall be maintained. In all cases, the tubes shall be as near to vertical and parallel as possible.

Extend the tubes from the bottom of the drilled shaft to at least 3-feet above the top of the drilled shaft, or 2-feet above the ground surface for shafts with cut-off below the ground surface. The tubes must be watertight and capped to prevent concrete or debris from entering during manipulation of the cage and concreting. Care must be taken during lifting and lowering the steel reinforcement so as not to damage the tubes. Fill the CSL tubes with potable water prior to concrete placement. For production shafts and upon completion of the CSL tests, remove all the water from the access tubes or drilled holes and fill them up with an approved grout.

**C.3.12 Acceptance for Constructed Drilled Shafts**

**C.3.12.1 General**

Any shafts that are not constructed and installed in accordance to these special provisions will be rejected by the engineer. Rejected shafts shall be replaced or rectified by the contractor and subject to the acceptance of the engineer. This includes reinstallation of shafts, and the design and construction of a modified wall and construction of additional

shafts, at no additional cost to the department. The installation tolerances shall be measured upon excavation of the wall.

### C.3.12.2 Based on Specifications

The department will only accept drilled shafts for secant pile retaining walls that conform to these special provisions. Drilled shafts and related work construction disregarding any specified requirement will not be accepted including:

a. Drilled shaft excavations constructed out-of-tolerance, as specified in this specification. When repair to an out-of-tolerance shaft is possible as determined by the engineer, fix the drilled shaft to meet the tolerances before the contractor is permitted to proceed further with any drilled shaft construction. All repairs must be acceptable to the engineer before the contractor may resume the drilled shaft work.
b. Excavation of a drilled shaft with slurry not conforming to the QMP, Drilled Shafts special provision.
c. Drilled shafts exhibiting cuttings from slurry at the drilled shaft bottom; showing soft, incomplete, or unclean bottoms; or presenting side sloughing and sedimentation at the bottom.
d. Shafts with honeycomb intrusions or concrete in which the fines have been washed out or water channels in concrete.
e. Horizontal discontinuity or severe necking in the drilled shaft concrete.
f. Quarter-moon-shaped soil intrusions on the sides of a drilled shaft.
g. Folded-in debris inside the drilled shaft.
h. Drilled shafts for which the mix design has been altered without the acceptance of the engineer, including adding of unauthorized water to a mix design to bring it to certain slump.
i. Drilled shafts constructed in a manner where concrete placement has failed to meet the required time and tolerances, or the methods of installation did not have the engineer's acceptance.
j. Drilled shafts constructed with concrete not meeting the minimum 28-day compressive strength requirement indicated in the plans.

### C.3.12.3 Based on the PIT or (CSL) Test

CSL and PIT will be evaluated by the engineer. If the engineer determines that CSL or the PIT testing indicates significant anomalies or defects, the engineer will direct the contractor to core the shaft(s) at the location(s) of the defect or anomaly. The coring shall be a minimum of NX sized double tube core barrel. The engineer will determine the number of cores, length(s), location(s), and testing methodology. If the coring or core sample testing results confirm the presence of significant anomalies or defects, the drilled shaft will be determined to be unacceptable and rejected by the engineer. Upon rejection of the shaft(s), submit a remedial action plan to the engineer for correcting the rejected work. The remedial action plan shall include detailed shaft repair or replacement procedures if necessary and will be subject to acceptance by the engineer. Any modifications to the drilled shaft, load transfer mechanisms, and elements affected by the proposed remedial actions will require calculations and working drawings, and shall be made and stamped by a professional engineer, registered in the state of Wisconsin.

In the event that the engineer directs the contractor to core through the concrete and the coring and associated core sample tests confirm the presence of anomalies or defects, the cost of coring, hole closure, core sample tests, and all labor and materials to perform the accepted remedial actions shall be provided at no additional cost to the department and with no extension of the contract time originally granted.

In the event that the engineer directs the contractor to core through the concrete and the core or core sample tests do not confirm the presence of anomalies or defects, the cost of the coring, hole closure and associated testing shall be borne by the department.

Frequent defects as determined by the engineer will result in a re-evaluation of the contractor's installation procedure and, depending on the frequency and type of defect, may direct the contractor to change or modify his procedure

**D Measurement**

The department will measure Wall Secant Pile (diameter) of individual shafts by the linear foot, acceptably completed. Longer shafts, larger shaft diameters, additional excavation, and additional concrete placed beyond the limits of the plan dimensions will not be measured for payment unless authorized and agreed to in advance of placement by the engineer.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.4425 | Wall Secant Pile 47.24-Inch | LF |

Payment is full compensation for furnishing, installing, and removing full depth temporary casing, guide walls, placing and removing temporary working surfaces, drilling fluids, documentation, clearing or removal of surface obstructions, clearing or removal of known man-made obstructions; removal of concrete due to oversizing, blowouts or protrusions from the face of the shafts; drilling the shafts, handling and disposal of the excavated, augered and cored soils, and any drilling fluids; positioning steel, wheel type spacers and boots; furnishing and placing the concrete for the drilled shafts to the dimensions and elevations as shown on the plans, and installing and closing the crosshole logging tubes; required wall repairs to address leaks.

Reinforcement bars are measured and paid under the bid item Bar Steel Reinforcement HS Bridges.

Removal of unknown man-made subsurface obstructions for Wall Secant Pile 47.24-Inch will be measured and paid for separately under the bid item, Obstructions Wall Secant Pile, included in the contract.

## 340. Drilled Foundation Shaft 59.06-Inch, Item SPV.0090.4430; Drilled Foundation Shaft 98.43-Inch, Item SPV.0090.4435; Drilled Foundation Shaft 118.11-Inch, Item SPV.0090.4440.

### A Description

This special provision describes installing drilled foundation shafts for bridge foundations as shown on the plans including requirements for contact grouting around left-in-place casing for shaft sockets where shown on the plans.

This special provision does not include requirements for base grouting of drilled shaft foundations. When called for in the plans, refer to the SPV article and pay item "Drilled Foundation Shaft Base Grouting" for drilled foundation shaft base grouting requirements.

### A.1 Qualifications of the Contractor

A contractor shall be on the Wisconsin Department of Transportation state-wide list of pre-certified drilled shaft contractors.

http://wisconsindot.gov/hcciDocs/precertified-contractors.pdf

Only entities currently on this list can perform the work associated with the installation of drilled shafts as described in these special provisions. Contractors or entities not listed and not pre-certified are not permitted to perform the work.

Submit the name(s) of pre-certified drilling contractor(s) that will perform installation of drilled foundation shafts on the project to the department within 24 hours after the bid opening. Submit to:

Scott Lawry / Chief Proposal Management Engineer
Wisconsin Department of Transportation
Division of Transportation System Development
Phone: (608) 266-3721
Fax: (608) 266-8459
Email: scott.lawry@dot.wi.gov

The drilling contractor's assigned personnel must match, by position, individuals shown in the contractor's precertification submittal. Submit the names and position of the drilling contractor's staff at the preconstruction meeting or 14 calendar days prior to the start of the drilled shaft construction, whichever date is earlier. Do not start any drilled shaft work until the engineer confirms that the contractor's proposed staff conforms to the contractor's accepted precertification submittal. The engineer may suspend the drilled shaft work if the contractor staffs the project with personnel not identified in the contractor's accepted precertification submittal without prior acceptance from the engineer for staff substitutions. If work is suspended due to the substitution of unqualified personnel, an adjustment in contract time resulting from the suspension of work will not be permitted.

**A.2 Staff Substitution**

The drilling contractor is expected to staff the project with personnel identified in the drilling contractor's accepted precertification submittal. Request in writing to the engineer to provide substitute staff not identified in the contractor's accepted precertification submittal. Substitute staff must be equivalently or better qualified as determined by the engineer. Provide the experience and qualification information for the proposed substitute staff as was originally provided for the staff in the contractor's precertification submittal. The contractor will not be permitted to start or continue any drilled foundation shaft work with substitute staff until the engineer confirms their qualifications and accepts the proposed substitute staff to work on the project.

**B Materials**

**B.1 General**

Concrete, drilling fluid, reinforcement and formwork shall be in accordance to the requirements of QMP Drilled Shafts, standard specifications, as shown on the plans, and as hereinafter provided.

In the event that the provisions of other specification clauses cause ambiguity or conflict with these special provisions, these special provisions shall take precedence unless otherwise accepted by the engineer.

**B.2 Equipment**

Equipment used for excavation, drilling, and cleaning operations shall utilize a full depth temporary casing, installed using a hydraulic oscillator, and an overhead rotary drill rig to excavate inside the casing. The oscillator shall have adequate capacity; including power, torque, and down thrust to install and extract the full depth temporary casing to a depth equal to the maximum depth of the drilled shafts shown in the plans plus 15 feet, or plus 20 percent of the maximum depth shown in the plans, whichever is greater. The overhead rotary drill rig shall have adequate capacity, including power, torque and down thrust to excavate a hole within the casing to a depth equal to the maximum depth of the drilled shafts shown in the plans plus 15 feet, or plus 20 percent of the maximum depth shown in the plans, whichever is greater. Anticipate and make available at the job site all equipment necessary and essential to penetrate soft and hard soils, as well as cobbles and boulders and unidentified man-made obstructions, during the construction of the drilled shafts.

The oscillator must be capable of installing and extracting the full depth temporary casing by means of rotational or oscillatory motion and advancing the casing a minimum of 5 feet ahead of the excavation inside the casing until the shaft tip elevation is reached. No excavation ahead of the casing is permitted without the engineer's approval. Installation or removal of temporary casing by impact driving or vibration is not permitted. Advancing and installing the temporary casing by means of excavation ahead of the casing is not permitted.

Where hard soils, or other material including natural or man-made obstructions are encountered and cannot be drilled using conventional earth or rock augers, drilling buckets, and/or over reaming tools, provide drilling equipment including but not limited to

rock core barrels, rock tools, down the hole hammer, chisels, air tools, or any other equipment necessary to advance the drilled shaft excavation to the depth and size as shown on the plans.

When applicable, or required by the engineer, provide equipment that produces a stable slurry suspension, mechanical agitation, and a pipeline or other safe methods of transporting the slurry to the drilled shaft.

**B.3 Casing**

**B.3.1 Temporary Casing**

Temporary casing shall be steel; rigid, smooth, clean, watertight, and of ample strength to withstand both handling and installation stresses and the pressure of both concrete and the surrounding earth materials. Temporary casing must be of sufficient length to provide temporary casing the full length of excavation for all drilled shafts. Segmented casing, if used, must be segmented using flush bolted, casing joints. Telescopic casing is not permitted. The diameter of casing shall not be less than the specified size of the drilled shaft. All casing diameters shown on the plans refer to outside diameter, O.D. dimensions.

**B.3.2 Left-In-Place Casing**

Use permanent, left-in-place casing only in shaft socket locations as shown in the plans. Left-in-place casing shall be steel that minimally conform to ASTM A36. Substitution of steel material with properties meeting or exceeding ASTM A36 may be used if approved by the engineer. Supply casing of the minimum length to achieve the length shown on the plans plus an additional 2 feet minimum embedment into the shaft concrete. Left–in-place casing shall be rigid, smooth, clean, watertight, and of ample strength to withstand both handling and installation stresses and the pressure of both concrete and the surrounding earth materials.

**B.4 Temporary Working Surface**

Fill material, if required, to create a working surface for construction can be any suitable material approved by the engineer containing no logs, stumps, brush, perishables, or other materials such as stone or broken concrete that may affect the drilling of the shafts. Material that will remain permanently shall consist only of appropriate embankment fill when placed in association with a roadway, conforming to the requirements of standard spec 207.2.

**B.5 Reinforcing Steel and Spacers**

Deformed reinforcing bars shall comply with the size, dimension, spacing, and details shown on the plans. In addition, they shall conform to AASHTO M31, Grade 60, and all the pertinent requirements of standard spec 505. Non-corrosive wheel type spacers and boots shall be used to properly position the reinforcing steel. All reinforcing steel shall be 100% wire tied between the vertical reinforcement and ties.

**B.6 Crosshole Sonic Logging (CSL) Tubes**

Access tubes for CSL testing shall be 2 inches I.D. schedule 40 steel pipe conforming to ASTM A 53, Grade A or B, Type E, F, or S. Pipes shall have a round, regular internal

diameter, free of defects or obstructions; including any defect at the pipe joints, to permit the free unobstructed passage of source and receiver probes. Each tube or steel pipe shall be fitted with a watertight shoe onto the bottom and a removable cap at the top. Both, the shoe and cap shall be watertight and free from corrosion. The internal and external faces of the CSL tubes shall be clean to ensure passage of the probes and produce a good bond with the concrete.

**B.7 Contact Grout**

Contract grout for contact pressure grouting around left-in-place casing for shaft sockets shall consist of water, sand and Type 1 Portland cement with admixtures as necessary to achieve a low strength, non-shrink, non-bleed, flowable grout. Contact grout shall have a minimum 24-hour compressive strength of 75 psi and a minimum 28-day compressive strength of 200 psi. All contact grout component materials shall conform to standard spec 501.2.

## C Construction

### C.1 Drilled Foundation Shaft Installation Plan

#### C.1.1 General

Prepare and submit a Drilled Foundation Shaft Installation Plan at the preconstruction meeting or at least 14 calendar days prior to beginning drilled shaft construction, whichever date is earlier. Submit the Drilled Foundation Shaft Installation Plan to the engineer for review. The engineer will accept the plan as submitted or return the plan with requested revisions. The engineer's initial acceptance of the submitted plan is considered preliminary with final acceptance pending the successful completion and acceptance of the Trial Drilled Foundation Shaft included in the contract. Do not start any work on production drilled foundation shaft installations until after the successful installation of the Trial Drilled Foundation Shaft and the engineer provides final acceptance the Drilled Foundation Shaft Installation Plan. Acceptance of the installation plan does not relieve the contractor of responsibility for successful completion of the drilled foundation shafts.

#### C.1.2 Subsurface Conditions

The subsurface conditions vary across the project site and are not necessarily the same along the length of structures containing drilled shafts. Anticipate the possibility of encountering loose permeable sand or gravel seams of substantial thickness interlaced randomly within glacial clay and till deposits, saturated soils and ground water, isolated cobbles or boulders, and nestled cobbles and boulders while excavating and installing secant pile walls or drilled shafts along the length of structures within this contract.

The contractor is strongly advised to obtain and review the Geotechnical Exploration and Foundation Evaluation Report for the bridge structure for which the drilled foundation shafts are being constructed. See article "Geotechnical Investigation Information" in these special provisions for information on obtaining geotechnical reports.

### C.1.3 Submittals

The submitted Drilled Shaft Installation Plan shall include the following:

a. **Job Site Visit**. Acknowledge that the job site was visited to verify the site conditions with regard to entrance, access, overhead lines, subsurface features, clearing and grubbing, permitting, and collecting all information necessary to plan and execute the installation of the drilled shafts.

b. **Plan to Protect Existing Structures**. Outline the steps to be taken during drilled shaft installation to protect adjacent or nearby structures and utilities.

c. **Details of Environmental Control Procedures**. Provide plan to prevent loss of slurry or concrete into waterways, project areas, or protected areas. Detail method to ensure the compliance with state and federal environmental regulations during drilled shaft construction.

d. **List of Proposed Equipment**. Include details of proposed templates; number and sizes of cranes; number and size of oscillators; number and sizes of drills, include rotary torque, crowd force drills, and maximum drilling depth; diameter, length, and reach of augers, bailing buckets, guide walls, templates, and roller bits; cleaning equipment including cleaning buckets, submersible pumps, or air-lifted pumps; size of de-sanding equipment and slurry pumps; soil/rock-coring sampling equipment; inspecting drilled shaft apparatus; length and diameter of tremie or size of concrete pumps; size, length, and thickness of casings; over reaming equipment; and all relevant equipment necessary to complete the drilled shaft installation. Acceptance of the installation plan by the department does not relieve the contractor responsibility to provide other equipment, if necessary, to achieve satisfactory shaft installations meeting the requirements of this special provision.

e. **Details of Sequence of Drilled Shaft Installation and Time for Construction Operations**. Include a layout of the drilled shaft installation sequence. Provide a sequential list of installation steps and a time table of operations for installing full depth temporary casing, sealing casing, excavation and/or drilling time, drilled shaft cleaning, rock coring, drilled shaft inspection, concrete placement. Consider the effect of construction operations of one drilled shaft onto the adjacent drilled shaft(s) and utilities and avoid construction conflicts that will affect the quality or integrity of the completed work. Indicate when and what construction sequence modifications shall be performed under atypical situations, i.e, weekend or holiday shutdowns, unanticipated shutdowns due to equipment issues, etc.

f. **Proposed Drilled Shaft Installation Procedure(s)**. Provide details of the proposed shaft installation procedures, including coring or drilling boulders, rock, obstructions or steep sloping surfaces, when required, and meeting the minimum installation requirements set forth in subsection C.3. Method for identification of the competent or bearing material before finalizing the excavation. Method for monitoring verticality of the drilled shaft walls during excavation, and details of proposed corrective measures to be implemented for shafts out of tolerance. Details of the methods and means of preventing displacement of the casing and/or drilled shaft during installation.

g. **Details of Slurry Operations.** This is required if slurry is used to stabilize the bottom of the excavation within the temporary casing. Include slurry type, methods to mix, circulation, de-sanding, and test the slurry to comply with these special provisions.
h. **Inspection and Cleaning**. Methods to clean and inspect the drilled shaft excavation prior to reinforcement placement.
i. **Crosshole Sonic Logging (CSL).** Method to install and secure the CSL pipes to the reinforcing cage or steel core, along with the proposed selection of pipe and size.
j. **Details of Reinforcement Steel Placement During Construction**. Include methods to ensure cage centering and cover; proper cage orientation, cage integrity while lifted during placement, number of cranes, number of lift points, and number of spreader bars; number and location of bottom and side spacers; cage support; and tie downs during concrete placement.
k. **Concrete Placement Plan**. The purpose of the Concrete Placement Plan is to ensure that a sufficient quantity of concrete is at the job site or in transit to the job site so that the entire pour can be done without delay. Include location of the concrete plant, number of trucks, estimated delivery times, estimated time between trucks, and number of trucks at the site before placement begins. Indicate the use of tremie or concrete pump lines and details of the seal to be used at the bottom end of the tremie or concrete pump line. Breakdowns of concrete plants, trucks, or traffic problems shall be considered under this Concrete Placement Plan. The contractor shall be aware of, and account for, batch, travel, and concrete placement times. Include an estimate of the concrete placement time per drilled shaft. When applicable, detail excavation to grade and finishing of the drilled shafts.
l. **Casing Removal**. Include the details and means by which the contractor intends to remove full depth temporary casings and provide information about staged temporary casing removal when applicable.
m. **Setting Left-In-Place Casing at Shaft Socket Locations.** Include details and means of setting the left-in-place casing around shaft socket locations where shown in the plans. Include details on method of removing or otherwise avoiding the over pour shaft concrete displaced above the bottom of the socket from being permanently trapped inside the left-in-place casing for the shaft sockets.
n. **Contact Pressure Grouting Around Left-In-Place Casing For Shaft Sockets.** Submit details of materials, equipment, and methods of contract pressure grouting around left-in-place casing for shaft sockets. Include contact grout mix design; timing of temporary casing removal and left-in-place casing placement; grout tube locations and length around shaft annulus; contact grouting methods, procedures, timing and sequences; plans for grout injection and release of water, disturbed soil or slurry; means of qualitative prediction of required grout volume and measuring pumped grout volume.
o. **Methods of Handling and Disposal of Spoil Excavation, Waste Slurry, Waste Concrete, and Drilled Shaft Cutoffs**. Present sufficient details to the engineer to evaluate the adequacy and compliance of the contractor's methods of disposal with the standard specifications, including all related environmental permits and local regulations.

p. **Other Information** requested on the plans or by the engineer.

q. **Reinforcing Steel Assembly and Installation Plan.** For shafts with a 6'-0" minimum nominal diameter and 60'-0" minimum length, prepare and submit the reinforcing steel assembly and installation plan. Reinforcing steel shop drawings, details of reinforcement placement, including bracing, centering, and lifting methods, and the method to assure the reinforcing cage position is maintained during construction, including use of bar boots and/or rebar cage base plates, and including placement of rock backfill below the bottom of shaft elevation shall comply with the pertinent requirements of the specifications.

The reinforcing steel assembly and installation plan shall include:

1. Procedure and sequence of steel reinforcing bar cage assembly.

2. The tie pattern, tie types and tie wire gages for all ties on permanent reinforcing and temporary bracing.

3. Number and location of primary handling steel reinforcing bars used during lifting operations.

4. Type and location of all steel reinforcing bar splices.

5. Details and orientation of all internal cross-bracing, including a description of connections to the steel reinforcing bar cage.

6. Description of how temporary bracing is to be removed.

7. Location of support points during transportation.

8. Cage weight and location of the center of gravity.

9. Number and location of pick points used for lifting for installation, and for transport (if assembled off-site).

10. Crane charts and a description and/or catalog cuts for all spreaders, blocks, sheaves and chockers used to equalize or control lifting loads.

11. The sequence and minimum inclination angle at which intermediate belly rigging lines (if used) are released.

12. Pick point loads at 0, 45, 60 and 90 degrees and at all intermediate stages of inclination where rigging lines are engaged or slackened.

13. Methods and temporary supports required for cage splicing.

14. For picks involving multiple cranes, the relative locations of the boom tips at various stages of lifting, along with corresponding net horizontal forces imposed on each crane

**C.1.4 Acceptance**

The department will evaluate the Drilled Foundation Shaft Installation Plan for conformance with the requirements of these special provisions. Within 14 calendar days after receipt of the Drilled Foundation Shaft Installation Plan, the engineer will notify the contractor of the preliminary acceptance of the plan, or if additional information and/or changes are required. Any unacceptable part of the Installation Plan will require resubmission. The contractor must resubmit the Drilled Foundation Shaft Installation Plan for evaluation and review with the necessary changes or additional information provided. The engineer will provide a written notice of preliminary acceptance or rejection of contractor's resubmitted Drilled Foundation Shaft Installation Plan within 14 calendar days after its receipt. The engineer will provide final acceptance of the Drilled Foundation Shaft Installation Plan after the successful completion of the Trial Drilled Foundation Shaft and satisfactory drilled foundation shaft installation performance is demonstrated in the field.

After assessment or reassessment of the Drilled Foundation Shaft Installation Plan has been made and the engineer has granted preliminary acceptance, no changes to the plan can be made without written consent of the engineer.

**C.2 Trial Drilled Foundation Shaft**

After the Drilled Foundation Shaft Installation Plan has been preliminarily accepted, construct a non-production trial drilled foundation shaft using the same crews and equipment that will be performing the drilled foundation production work. Construct in accordance to the Trial Drilled Foundation Shaft special provision and adhere to and demonstrate the adequacy of the accepted Drilled Foundation Shaft Installation Plan.

Construction of the Trial Drilled Foundation Shaft will be used to determine if the contractor's methods, equipment, personnel, and proposed procedures are effective to produce stable drilled shaft excavations and drilled foundation shafts that meet the requirements of these special provisions. CSL tests may be performed by the engineer, as part of the evaluation of the trial shaft. With approval of the engineer, revise construction methods and equipment as necessary during this stage or at any time during the installation of production shafts to satisfactorily complete the drilled foundation shafts in accordance to these special provisions.

In the event the contractor fails to demonstrate the adequacy of the drilled foundation shaft installation procedure(s) or equipment during construction of the Trial Drilled Foundation Shaft, the engineer will require appropriate modifications as may be necessary to produce acceptable results. Comply to satisfactorily demonstrate the adequacy of the proposed

method(s) or equipment, or construct additional trial drilled foundation shafts as indicated by the engineer at no additional cost to the department.

### C.3 Drilled Shaft Installation

#### C.3.1 General

Carry out the work in accordance to the accepted Drilled Foundation Shaft Installation Plan and as demonstrated during installation of the Trial Drilled Foundation Shaft. The resulting installation plan shall include length of full depth temporary casing, details of the constituent materials of any drilling fluid or means used for stabilization of the bottom of the excavation, the method of inspection, details of the concrete design mix, concreting method, the anticipated time to complete one shaft, and the pattern of construction.

Ensure that damage does not occur to the completed shafts as a result of work on adjacent shafts. Submit to the engineer a drilled shaft installation sequence. The proposed sequence and timing of shaft installation shall be such that the installation work will not cause any damage to adjacent shafts. The shaft installation shall not commence until acceptance of the engineer has been obtained.

#### C.3.2 Temporary Working Surface

Use a temporary working surface to provide a level surface at the top of shafts for drilling where needed.

#### C.3.3 Forcible Correction

Where shafts have not been positioned within the specified limits no method of forcible correction will be permitted.

#### C.3.4 Records

Keep a work record of all shafts installed. Give a copy of each day's record to the engineer within 24 hours of that day's work being completed. The engineer will review and agree to the daily record form format before drilled shaft work commences. Incorporate any comments by the engineer into the record form. Note all unexpected drilling or installation conditions in the records.

#### C.3.5 Methods of Drilled Shaft Installation

##### C.3.5.1 General

The temporary casing installation method and concrete placement in the wet using a tremie pipe shall be used to produce sound and durable drilled shafts free of defects. When a particular installation method is required in the special provisions, only that method of construction shall be used. If no particular method is specified for use, select and use one of the methods of construction as determined by the site conditions and needed to properly accomplish the work. Do not use the permanent casing method unless authorized by the engineer. Submit to the engineer for acceptance his selected method of construction in the Drilled Shaft Installation Plan described in these special provisions.

Full length temporary casing with the use of water or slurry inside the temporary casing, is required for the installation of all drilled shafts on the project. The use of permanent casing method will not be permitted unless authorized by the engineer. The use of slurry without casing is not permitted. Full depth temporary casing shall be installed using overhead rotary drive equipment or by using hydraulic oscillating equipment specifically intended for temporary casing installation and extraction. Installation of full depth temporary casing by means of driving or vibrating is not permitted. Advancing and installing casing by means of excavation ahead of the casing is not permitted. During temporary casing installation and shaft excavation, the tip of the temporary casing shall be advanced a minimum of 5 feet ahead of the tip of the excavation, until the bottom of the excavation is reached.

After the temporary casing is in place, excavate inside the casing, while keeping the temporary casing full of water or slurry as necessary to stabilize the bottom of the excavation within the casing. Excavate to the planned shaft tip elevation using the wet excavation techniques described below. Clean the bottom of the excavation. Before extracting the temporary casing, ensure that the level of fresh concrete inside the casing is at such level that the pressure of its hydrostatic head displaces up and out the fluid trapped in the annular space between the casing and the drilled shaft wall.

**C.3.5.2 Dry Installation Method**
The dry method of shaft installation is not permitted.

**C.3.5.3 Temporary Casing Installation Method**
The temporary casing method of shaft installation consists of supporting the shaft excavation by means of full depth temporary casing that is advanced ahead of the excavation until the drilled shaft tip elevation is reached. Excavate, remove, and clean all accumulated loose material from within the cased excavation before placing the reinforcement cage and the shaft concrete in the wet excavation. Do not place concrete into the wet excavation using free fall. Concrete must be placed under water in wet excavation using proper tremie procedures to direct the concrete under the water inside the shaft excavation and displace the water.

**C.3.5.4 Wet Installation Method**
The wet installation method consists of drilled shaft installation by means of full depth temporary casing in conjunction with the use of slurry, drilling fluid, or water to maintain stability against heave and blow-in in the bottom of the excavation. Use the wet installation method for all drilled foundation shafts in the contract. When using the wet method below the groundwater table, all drilled shaft operations shall be accomplished while maintaining a positive head of fluid of sufficient depth above the water table to avoid heaving or blow-in of the bottom of the excavation.

**C.3.5.5 Permanent Casing Method**
Do not use the permanent casing method for shaft installation. Use of permanent, left-in-place casing is limited to drilled shaft socket locations as called out and detailed in the plans.

### C.3.6 Excavations

#### C.3.6.1 General

Excavations required for the drilled foundation shaft s shall be performed through whatever materials are encountered to the dimensions and elevations shown in the plans, or as directed by the engineer. The excavation and installation method shall be suitable for the intended results and materials encountered. Blasting is not permitted.

Maintain a construction log during the drilled foundation shaft excavation. The construction log will include information such as ground elevation, ground water elevation, sequence number, method of installation, machines and tools employed, drilling fluids employed, drilling times, excavated materials and their particular elevations, soil samples and their particular elevations, and all other information relevant to the excavation process that will assist the engineer in evaluating the foundation. Information shall also include proposed methods for disposal of excavated material and slurry in accordance to state and local environmental regulations, codes and ordinances, the standard specifications, or as directed by the engineer.

#### C.3.6.2 Protection of Existing Structures

Take all reasonable precautions to prevent damage to existing structures and utilities. These measures shall include, but are not limited to, subsidence control during installation of temporary casings or excavation inside temporary casings.

Where drilled foundation shafts are to be installed in conjunction with embankment placement, the drilled foundation shafts shall be constructed after placement of the fill, unless otherwise shown in the plans, or accepted by the engineer. If fill is required to be placed after completion of the drilled shafts, the footing cap shall be done, as closely as possible, after the fill is in placed and compacted to final grade leaving only the space necessary for the construction of the cap.

#### C.3.6.3 Drilled Shaft Excavation

Provide the necessary equipment to remove and dispose of all materials encountered in the drilled shaft excavation to the dimension and elevation shown on the plans, or as directed by the engineer. Contractor's excavation equipment may include but is not limited to earth augers and rotary drills designed to work within full depth temporary casing. Unless otherwise shown on the plans, the drilled shaft excavations shall be vertical bored holes extending from the ground surface down to design tip elevation.

#### C.3.6.4 Obstructions

Obstructions are defined as man-made objects that when encountered, stop or significantly impede downward progress of the temporary casing installation or excavation to less than 12-inches for 60 minutes or longer under normal applied thrust and torque. Obstructions include man-made objects and may include, but are not limited to old concrete foundations, piling, abandoned utilities or buried pavements. Obstructions are further classified as "known obstructions" which are identified on the plans, and "unknown obstructions" that may be encountered but are not identified on the plans.

Employ special tools and/or procedures as necessary when obstructions are encountered and the contractor cannot advance the excavation more than 12-inches in 60 minutes using conventional rock augers fitted with teeth, drilling buckets, or under reaming tools operating at normal power, torque, and down thrust. Special procedures and tools that may be required include, but are not limited to; chisels, breakers, core barrels, air hammer tools, and hand excavation. Other methods for obstruction removal such as temporary casing or hole diameter increase can be employed to aid in the removal if acceptable to the engineer. Blasting is not permitted.

Natural deposits, including boulders, cobbles, nested cobbles and other deposits may be encountered that impede the installation and advancement of the temporary casing and excavation to less than 12-inches for 60 minutes or longer as noted above for obstructions. Natural deposits, regardless of makeup, depth, configuration, and consistency are not classified as obstructions as defined in this special provision or the special provision Obstructions Drilled Foundation Shaft included in the contract.

**C.3.6.5 Lost Tools**

Drilling tools that are lost in the excavation shall not be considered obstructions and shall be promptly removed. All costs due to removal of lost tools shall be borne by the contractor including costs associated with hole degradation during removal operations or time while the hole remains open.

**C.3.6.6 Inspections and Cleanliness of Excavation**

Provide the details of drilled shaft inspection and cleanliness within the Drilled Foundation Shaft Installation Plan, required by subsection C.1.3 of this specification. Provide equipment and tools for checking the dimensions and alignment of each drilled shaft excavation, and coordinate schedules for inspection of the excavation with the engineer. Determine dimensions, alignment, and final depth of the drilled shafts after final cleaning. When applicable, provide safe access and egress to the engineer for inspection of the walls and bottom of the drilled shaft excavation prior to placement of the rebar cage or steel core section and concrete. After the drilled shaft excavation has been prepared for inspection, notify the engineer. The cleanliness and the bearing surface of the drilled shafts will be evaluated and accepted by the engineer. Unless the engineer specifies otherwise, the contractor's cleaning operation shall be considered sufficient when no more that 50 percent of the bottom area of each shaft has less than 1/2-inch of sediment or debris at the time of hole acceptance just prior to steel positioning and concrete placement. The maximum depth of sediment or any debris at any location on the bottom of the shaft shall not exceed 1 1/2-inch at the time of concrete placement.

**C.3.6.7 Safety**

Do not permit any worker to enter the drilled foundation shaft excavation for any reason unless a suitable casing has been installed, the water level has been lowered and stabilized below the level to be occupied, and suitable safety equipment and procedures have been provided to the personnel entering the excavation which includes OSHA certification for confined-entry-space.

### C.3.6.8 Record Information

Provide to the department the drilled shaft excavation records and report any unusual observation to the engineer within 8 hours of discovery. Submit a draft of this form for each completed drilled shaft within 24 hours of shaft completion, and submit the final form within 2 weeks. Submit relevant information on a daily basis, or more frequently when variations occur, or as otherwise required by the engineer.

Report the drilled shaft construction progress in accordance to "Records and Forms" Drilled Shafts: Publication No. FHWA – GEC 010, Section 19.5 and Appendix F, pages F-1 through F-16.

### C.3.7 Placement of Reinforcing Steel Cage

Prior to placement of the reinforcing steel and concrete, if slurry fluid was employed during the installation of the drilled shaft, test the slurry for compliance with this specification as described in the QMP Drilled Shafts special provision. Slurry Tests shall be performed along the shaft and at the bottom of the shaft. Adjust the slurry properties as necessary to meet the specifications.

Prior to placement of the reinforcing steel and concrete, ensure that the C.3.6.6 cleanliness requirements are met.

Concrete or non-corrosive spacers shall be used at sufficient intervals not exceeding 10 feet along the reinforcement cage or the steel core. A minimum of 4 spacers shall be spaced evenly around the circumference of any shaft with a maximum space around the shaft circumference of 30 inches between any spacer (i.e. at any given level a 4-foot diameter shaft shall have 4 spacers). The first spacers shall be placed 1.5 feet from the bottom of the shaft with successive spacers at maximum intervals of 10 feet along the shaft. Spacers shall be of an appropriate diameter wheel to provide minimum clearance shown on the plans between the shaft excavation walls and the steel reinforcement.

### C.3.8 Concrete Placement

#### C.3.8.1 General

Place concrete continuously once concrete placement is started. No intermediate construction or cold joints are permitted within a single drilled foundation shaft.

Test the concrete delivered to the job site for compliance with the QMP Drill Shafts special provisions, the standard specifications and these special provisions.

#### C.3.8.2 Concrete Placement Time

Place concrete within three hours after excavation inspection and approval unless otherwise directed by the engineer. If the concrete is not placed within this time frame, the excavation must be re-inspected and accepted by the engineer prior to concrete placement.

#### C.3.8.3 Concrete Placement by Free Fall

Concrete placement within drilled shafts by free fall is not permitted.

### C.3.8.4 Concrete Placement by Tremie Pipes

Use tremie pipes to place the concrete inside the excavation. Keep the discharge end of the tremie a minimum of 7-feet below the level of the fresh concrete already placed inside the excavation to maintain a seal. The concrete shall flow into position by pressure through a steel tremie with a minimum diameter of 10-inches. Seal the bottom of the tremie using one way flap valve, before it is lowered into the wet excavation. If water/slurry enters the tremie pipe after concrete pouring has started, the tremie must be withdrawn, cleaned, resealed, and pouring restarted. If for some reason, the tremie is raised out of the fluid concrete or the concrete inside the drilled shaft drops down contaminating the tremie, completely remove and clean the tremie, then replace the seal at the bottom of the tremie, and lower the tremie back as far below as possible into the already placed concrete.

### C.3.8.5 Concrete Placement by Concrete Pumps

Concrete pumps and concrete lines can be used to place concrete in drilled shafts rapidly or to deliver the concrete from a distant location. However, due to the need to disassemble the pump line to allow the removal of casing sections and potential air pockets, disruption in concrete flow, the concrete pump placement directly within the shaft is not permitted on this project. The pump must discharge the concrete into a minimum 10-inch diameter steel tremie with a bottom one way flap valve.

All pump lines and connections shall be watertight and must guide the concrete to the discharge point at the center of the rebar cage or steel core and drilled shaft excavation. The pump line may be flexible; however, inside the shaft use a minimum 10-inch diameter steel tremie pipe that can deliver the concrete in an uninterrupted manner. Keep the bottom of the tremie or discharge orifice 7-feet below the surface of fluid concrete already placed to avoid sudden jumping of the pump line out of the excavation. Concreting shall continue until over pouring is evident at the top of the drilled shaft and until dark gray concrete (acceptable concrete) can be distinguished from the drilling fluid.

### C.3.8.6 Casting Level

Over pour concrete above the top of shaft cut-off level to ensure that all concrete at and below cut-off level is homogeneous and free of laitance and deleterious materials. For drilled shafts with socket connections detailed at the top of the shaft, strike off or otherwise remove displaced concrete from the over pour before setting left-in-place casing around the shaft socket or otherwise ensure that the displaced concrete from the over pour is not trapped and permanently retained inside the left-in-place casing that is placed around the shaft socket.

### C.3.9 Left-In-Place Casing Placement for Shaft Sockets

Where shown on the plans, provide and place permanent, left-in-place casing for shaft sockets to allow construction of the overlying pier column. Remove temporary casing to a point where it is just above the fresh drilled shaft concrete. Temporary casing is required to remain in this position until placement of the left-in-place casing for the shaft socket. Extend left-in-place casing for shaft sockets a minimum of 2 feet into the fresh shaft concrete.

**C.3.10 Contact Grout Injection**

Perform contact grouting to reduce groundwater inflow, to fill voids, to minimize ground movement into the excavation, and to provide firm and uniform contact between the left-in-place casing at shaft sockets and the adjacent ground. Accomplish contact grouting around left-in-place casing for shaft sockets within 12 hours of drilled shaft concrete placement.

Continuously agitate grout in the mixer and holding tanks. Do not use mixed contact grout that is not injected into the hole prior to contact grout initial set or within 2 hours after mixing.

Maintain contact grout at temperatures above 50 degrees Fahrenheit (F) until injected. The temperatures of mixing water shall range from 50 degrees F to 100 degrees F when added to the contact grout mixer. Store contact grout materials at temperatures above freezing. Ground adjacent to contact grout shall be no colder than 40 degrees F when contact grout is injected and for a period of three days thereafter.

The number of contact grout pipes required is a function of the left-in-place casing diameter at shaft sockets. A minimum of one grout pipe per each one foot of left-in-place casing diameter is required. Flag and protect all contact grout pipes. Clearly label contact grout pipe locations for easy identification.

Protect contact grout pipes from becoming clogged or obstructed prior to grouting by means of a cap or other suitable device on the pipe. Clean out in a satisfactory manner or replace any pipe that becomes blocked or otherwise unsuitable for its intended purpose at the expense of the contractor.

Equipment and lines shall be kept clean by constant circulation of contact grout and periodic flushing with water. Leakage from connections is not permitted. Remove plugs on ends of nearby contact grout pipes to permit escape of air and water and the filling of spaces with contact grout. Check contact grout mix pump operating gauges daily to determine that they are in working order. Do not contact grout without appropriate gauges in working order.

Inject contact grout in continuous progression of the contact grout pipes along the outside circumference of the left-in-place casing at shaft sockets in the sequence submitted by the contractor or approved by the engineer. Exercise particular care to completely fill voids on each side of any obstruction which interferes with the passage of contact grout. The contact grout in the annular space between the excavation and the left-in-place casing for shaft sockets shall be tamped from top to bottom with a steel bar as the grout is placed to remove any trapped air and to provide contact with the soil adjacent to the excavation.

The contact grouting of any left-in-place casing for shaft sockets shall not be considered complete until all voids have been filled to the maximum extent practical and the contact grout has come to the ground surface. The contact grout at the surface must be free of

contamination from water, soil or debris. Provide a means to control and collect excess contact grout so that it does not run out onto the surrounding ground surface away from the drilled shaft.

At the completion of contact grouting, remove all contact grout pipes and steel rods before the contact grout has set. After the contact grouting of any left-in-place casing for shaft sockets is finished, the contact grout must remain undisturbed until the contact grout has set.

### C.3.11 Construction Tolerances for Individual Shafts

Drilled foundation shaft excavations or completed drilled foundation shaft s constructed out of the tolerance will not be accepted. The contractor is responsible for correcting to the satisfaction of the engineer all unacceptable work. Materials, construction, work, engineering analysis, and redesign necessary to complete corrections to out-of-tolerance excavations or completed drilled shafts shall be furnished to the department without either cost or time extension for the project. Comply with the following construction tolerances:

a. The final, as constructed position of the drilled shaft shall be within a maximum of 2 inches in any direction from the theoretical position shown on the plans, unless otherwise permitted by the engineer prior to construction.
b. The vertical alignment of the drilled shaft excavation shall not vary by more than 1/16 inch per foot from plumb vertical.
c. The diameter of the installed drilled shaft shall not be less than the diameter of the drilled shaft shown on the plans. Any conflicts due to a casing that is greater in diameter than the plan shaft diameter shall be remedied by the contractor. No additional compensation or schedule time shall be granted to the contractor for resolving any conflicts due to oversized casings. Employ equipment and methods of excavation to complete the drilled shaft excavation to a planar bottom, and the cutting edges of the equipment used during the excavation shall be normal to equipment's vertical axis within a tolerance of 3/8-inch per foot. The bottom of the drilled shaft excavation shall be normal to the axis of the drilled shaft within ¾-inch per foot.
d. Tolerances outlined in sections a. to c. herein shall be checked and finally met by the contractor prior to placement of the reinforced rebar cage or steel core inside the shaft hole.
e. After the concrete is poured, the top elevation of the installed drilled shaft shall be within 1-inch of the top elevation of the corresponding drilled shaft on the plans, and the top of the reinforcing steel cage shall be within the positional tolerance shown on the plans. The center of the reinforcing cage shall be the center of the drilled shaft.

### C.3.12 Non Destructive Testing Program

#### C.3.12.1 Shaft Integrity Testing (PIT)

The Pile Integrity Tester performs low strain integrity testing, alternatively called Sonic Testing, Pulse Echo, or Transient Response. The PIT can detect the presence and location of potentially dangerous defects such as cracks, necking, soil inclusions or voids and can

determine shaft length. The equipment and technique are well established, and specified by ASTM D5882.

Prior to beginning the PIT test, assure that the concrete top is accessible and cleaned. The test(s) will be performed by the engineer. The engineer will evaluate and analyze the PIT test results within five business days and provide the contractor with a response regarding the acceptability of the drilled shaft tested. The test shall be conducted on shafts that are at least five days old so that the concrete has attained minimum compressive strength necessary to perform the test.

### C.3.12.2 Crosshole Sonic Logging Test

#### C.3.12.2.1 General

Crosshole Sonic Logging, (CSL), is a nondestructive testing (NDT) method that measures the time for an ultrasonic pulse to travel from a signal source inside an access tube to a receiver inside another access tube and evaluates the integrity of drilled shafts.

Install access tubes intended for Crosshole Sonic Logging CSL testing. The test(s) will be performed by the engineer. All CSL testing will be completed within ten calendar days of concrete placement.

Prior to beginning the CSL test, ensure that the test probes can pass through and down the tubes to the bottom of every installed tube. If a tube is obstructed, the contractor, at no additional cost to the department, must core a hole within the drilled shaft and near the obstructed tube to the depth as directed by the engineer. The core shall be large enough to accommodate the probe through its full length.

The engineer will evaluate and analyze the CSL test results within five business days of their receipt and provide a response regarding the acceptability of the drilled shaft tested. The test shall be performed in accordance to ASTM D6760.

#### C.3.12.2.2 Installation Requirements

Drilled shafts must be fitted with CSL test tubes to evaluate their integrity as shown on the plans.

Install the access tubes or pipes as nearly parallel and far as possible from the longitudinal bars. The number of tubes to be installed per each drilled shaft diameter is as indicated in the table below:

| Drilled Shaft Diameter | Number of CSL Tubes | Tube Spacing |
|---|---|---|
| 59.06-inches | 5 minimum | As shown in plans |
| 98.43-inches | 8 minimum | As shown in plans |
| 118.11-inches | 10 minimum | As shown in plans |

Securely attach the tubes to the interior of the reinforcement cage with a minimum concrete cover of three inches. The tubes may be attached to exterior of the cage when accepted by the engineer provided the minimum cover requirement of 3-inches over the

tubes shall be maintained. In all cases, the tubes shall be as near to vertical and parallel as possible.

Extend the tubes from the bottom of the drilled shaft to at least 3-feet above the top of the drilled shaft, or 2-feet above the ground surface for shafts with cut-off below the ground surface. The tubes must be watertight and capped to prevent concrete or debris from entering during manipulation of the cage and concreting. Care must be taken during lifting and lowering the steel reinforcement so as not to damage the tubes. Fill the CSL tubes with potable water prior to concrete placement. For production shafts and upon completion of the CSL tests, remove all the water from the access tubes or drilled holes and fill them with an approved grout.

### C.3.13 Acceptance for Constructed Drilled Shafts

#### C.3.13.1 General

Any drilled foundation shaft s that are not constructed and installed in accordance to these special provisions will be rejected by the engineer. Rejected shafts shall be replaced or rectified by the contractor using methods and procedures subject to the acceptance of the engineer. If required to rectify rejected shafts, shaft replacement, shaft repair, or the cost of constructing additional shafts, will be at no additional cost to the department and no additional time will be added to the contract

In the event that a shaft or shafts are rejected, work on remaining drilled shafts in the contract cannot continue until the contractor re-visits and re-submits a revised drilled shaft installation plan and the revised plan is accepted by the engineer. The revised plan must address any construction issues that resulted in or contributed to the reason(s) for which the deficient shaft(s) were rejected. No additional time will be added to the contract for the time required to revise and accept the revised drilled shaft installation plan.

#### C.3.13.2 Based on Specifications

The department will only accept drilled foundation shafts that conform to these special provisions. Drilled foundation shafts and related work constructed in any manner that disregards any specified requirement will not be accepted. This includes:

a. Drilled foundation shaft excavations constructed out-of-tolerance, as specified in this specification. When repair to an out-of-tolerance shaft is possible as determined by the engineer, fix the drilled shaft to meet the tolerances before the contractor is permitted to proceed further with any drilled shaft construction. All repairs must be acceptable to the engineer before the contractor may resume the drilled shaft work.
b. Excavation of a drilled foundation shaft with slurry not conforming to the QMP Drilled Shafts special provision.
c. Drilled foundation shafts exhibiting cuttings from slurry at the drilled shaft bottom; showing soft, incomplete, or unclean bottoms; or presenting side sloughing and sedimentation at the bottom.
d. Drilled foundation shaft s with honeycomb intrusions or concrete in which the fines have been washed out or water channels in concrete.
e. Horizontal discontinuity or necking in the drilled foundation shaft concrete.

f. Quarter-moon-shaped soil intrusions on the sides of a drilled foundation shaft.
g. Folded-in debris inside a drilled foundation shaft.
h. Drilled foundation shaft s for which the mix design has been altered without the acceptance of the engineer, including the unauthorized addition of water to a mix design to bring it to a certain slump.
i. Drilled foundation shaft s constructed in a manner where concrete placement has failed to meet the required time requirements, placement tolerances, or the methods of installation did not have the engineer's acceptance.
j. Drilled foundation shaft s constructed with concrete not meeting the minimum 28-day compressive strength requirement shown on the plans.

**C.3.13.3 Based on the PIT or (CSL) Test**

CSL and PIT will be evaluated by the engineer. If the engineer determines that CSL or the PIT testing indicates significant anomalies or defects, the engineer will direct the contractor to core the shaft(s) at the location(s) of the defect or anomaly. The coring shall be a minimum of NX sized double tube core barrel. The engineer will determine the number of cores, length(s), location(s), and testing methodology. If the coring or core sample testing results confirm the presence of significant anomalies or defects, the drilled shaft will be determined to be unacceptable and rejected by the engineer. Upon rejection of the shaft(s), submit a remedial action plan to the engineer for correcting the rejected work. The remedial action plan shall include detailed shaft repair or replacement procedures if necessary and will be subject to acceptance by the engineer. Any modifications to the drilled shaft, load transfer mechanisms, and elements affected by the proposed remedial actions will require calculations and working drawings, and shall be made and stamped by a professional engineer, registered in the state of Wisconsin.

In the event that the engineer directs the contractor to core through the concrete and the coring and associated core sample tests confirm the presence of anomalies or defects, the cost of coring, hole closure, core sample tests, and all labor and materials to perform the accepted remedial actions shall be provided at no additional cost to the department and with no extension of the contract time originally granted.

In the event that the engineer directs the contractor to core through the concrete and the core or core sample tests do not confirm the presence of anomalies or defects, the cost of the coring, hole closure and associated testing shall be borne by the department.

Frequent defects as determined by the engineer will result in a re-evaluation of the contractor's installation procedure and, depending on the frequency and type of defect, the engineer may require the contractor to change or modify his procedure

**D Measurement**

The department will measure Drilled Foundation Shaft (diameter) of individual shafts by the linear foot, acceptably completed. Longer shafts, larger shaft diameters, additional excavation, and additional concrete placed beyond the limits of the plan dimensions will not be measured for payment unless authorized and agreed to in advance of placement by the engineer.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.4430 | Drilled Foundation Shaft 59.06-Inch | LF |
| SPV.0090.4435 | Drilled Foundation Shaft 98.43-Inch | LF |
| SPV.0090.4440 | Drilled Foundation Shaft 118.11-Inch | LF |

Payment is full compensation for preparing all submittals, including the Drilled Foundation Shaft Installation Plan; furnishing, installing, and removing full depth temporary casing, furnishing and installing left-in-place casing at shaft socket locations to the embedded depth defined in these special provisions, contact grouting around left-in-place casing at shaft sockets, templates, placing and removing temporary working surfaces, drilling fluids, documentation, clearing or removal of surface obstructions, clearing or removal of known man-made or natural obstructions; drilling the shafts, handling and disposal of the excavated, augered and cored soils, and any drilling fluids; lifting and positioning the reinforcement steel cage, including any required wheel type spacers,, boots, internal bracing of the reinforcement steel cage, and any other temporary lifting supports; furnishing and placing the concrete for the drilled Foundation Shafts to the dimensions and elevations as shown on the plans, including removal of over pour concrete; and, installing and closing the crosshole logging tubes.

Reinforcement bars are measured and paid under the bid item Bar Steel Reinforcement HS Bridges.

Removal of unknown man-made subsurface obstructions for Drilled Foundation Shaft (diameter) will be measured and paid for separately under the bid item, Obstructions Drilled Foundation Shaft included in the contract.

When called for in the plans, drilled foundation shaft base grouting will be measured and paid for separately under the bid item Drilled Foundation Shaft Base Grouting

## 341. Removing Temporary Shoring Left In Place, Item SPV.0090.4450.

**A Description**

This special provision describes Removing Temporary Shoring Left In Place in accordance to the pertinent provisions of standard spec 204 and as hereinafter provided. The temporary shoring has been left in place under a previous contract.

**B (Vacant)**

**C Construction**

Remove portion and or all part of temporary shoring five feet below finished surface elevation or as directed by the engineer. Dispose of all removed material at an offsite location.

Backfill the space that is excavated but not occupied by the new permanent construction in accordance to standard spec 206.3.13.

**D Measurement**
The department will measure Removing Temporary Shoring Left In Place by the linear foot, acceptably completed, measured horizontally along the length of the shoring.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item.

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.4450 | Removing Temporary Shoring Left In Place | LF |

Payment is full compensation for removing shoring, excavation, backfilling, furnishing and hauling materials; and for disposing of all materials.

## 342. Fence Chain Link Vinyl Coated 2.75-FT., Item SPV.0090.4455.

**A Description**
This special provision describes furnishing and installing new vinyl clad chain link fencing in accordance to standard spec 616, as directed by the engineer, and as hereinafter provided.

**B Materials**
The materials shall conform to standard spec 616.2.3 for chain link fence except that the fencing, posts, and all other components shall be coated with a bonded polyvinyl chloride (PVC) coating and shall conform to AASHTO M181 Type IV, Class B. Also provide PVC-coated ties and tension bars that conform to AASHTO M181. Ensure that the color of all fencing components matches the color of the chain link fence fabric. The specified fence fabric color is "Industry Standard Black."

**C Construction**
Color match the fencing components with the railing framework materials before painting the framework. Install chain link fence fabric in accordance to standard spec 616.3.3.3 and the plan details. Touch up painted framework surfaces marred by fencing installation.

**D Measurement**
The department will measure Fence Chain Link Vinyl Coated 2.75-FT in length by the linear foot, acceptably completed.

**E Payment**
The department will pay for the measured quantity at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.4455 | Fence Chain Link Vinyl Coated 2.75-FT. | LF |

Payment is full compensation for providing, fabricating, transporting, erecting and tensioning all fence components; for painting the framework, including touch up; for furnishing and applying bonded polyvinyl chloride (PVC) coating.

## 343. Piling CIP Concrete 16 X 0.50-Inch Special B-40-869, Item SPV.0090.4460; Piling CIP Concrete 16 X 0.50-Inch Special B-40-870, Item SPV.0090.4465; Piling Steel HP 14-Inch x 73 LB Special B-40-882, Item SPV.0090.4470; Piling Steel HP 14-Inch x 73 LB Special B-40-883, Item SPV.0090.4475.

### A Description

This special provision describes providing, driving, and determining the required driving resistance of driven piling beneath existing energized overhead 138kV electric transmission lines under the west abutments of Structures B-40-869 and B-40-870 and under the north abutments of Structures B-40-882 and B-40-883. Perform work in accordance to pertinent portions of the standard specifications, as shown on the plans, and as hereinafter provided.

### B Materials

#### B.1 Piling

Provide piling materials conforming to standard spec 550.2.

#### B.2 Temporary Shoring

Provide temporary shoring material, if desired to facilitate this construction, in accordance to standard spec 511.2.

#### B.3 Granular Backfill

Provide granular backfill, if required to fill in excavations for this work, in accordance to standard spec 209.2.

#### B.4 Other Miscellaneous Materials

If the contractor elects to use other materials to facilitate construction of driven piles underneath overhead electric utility lines at the subject locations, provide such materials in accordance to applicable sections of the standard specifications or other sections of these contract special provisions.

### C Construction

Perform this work in accordance to standard spec 550.3 and as hereinafter provided.

Drive piles beneath and/or adjacent to energized overhead 138kV electric transmission lines owned and operated by the American Transmission Company (ATC). Maintain crane clearance in accord with latest OSHA requirements. Contact ATC for additional clearance requirements and information.

Coordinate with ATC any additional measures required to drive piles due to restrictions caused by the proximity of the work to the energized 138 kV ATC wires. This additional work may include but is not limited to: specialized pile driving equipment; over-excavation to a lower pile driving elevation to provide additional vertical clearance from wire; backfilling of any over-excavation after pile driving is complete; additional temporary shoring to allow the over-excavation while protecting adjacent facilities; additional pile splices as may be required for driving shorter pile lengths; and for any specialized personnel required to perform the work.

**D Measurement**

The department will measure the Piling CIP Concrete 16 X 0.50-Inch Special (Structure) and Piling Steel HP 14-Inch x 73 LB Special (Structure) bid items by the linear foot, acceptably completed, measured as the length of piling driven and left in place below the cutoff elevation.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.4460 | Piling CIP Concrete 16 X 0.50-Inch Special B-40-869 | LF |
| SPV.0090.4465 | Piling CIP Concrete 16 X 0.50-Inch Special B-40-870 | LF |
| SPV.0090.4470 | Piling Steel HP 14-Inch x 73 LB Special B-40-882 | LF |
| SPV.0090.4475 | Piling Steel HP 14-Inch x 73 LB Special B-40-883 | LF |

Payment is full compensation for providing piles; for driving piles; for cutting off piles; for re-driving heaved up piles; for concrete; and for excavating material within the footing perimeter heaved up by pile driving operations.

The department will not pay for pile splices for piling included in this item under the Pile Splices administrative item. All Pile splices for piling paid for under this item are included in the cost for this item.

All other means and methods not described in this section and used to perform construction activities under existing energized overhead transmission lines are not included in the cost for this item, but rather are incidental to the work activity and bid item affected by the proximity to the energized lines.

## 344. Ductile Iron (DI) AWWA C-151 CL 55 Water Main 24-Inch, Item SPV.0090.5000.

**A Description**

This work includes providing and installing ductile iron water main at locations indicated in the plans, conforming to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and as hereinafter provided.

## B Materials

### B.1 General

Ductile iron (DI) piping shall be in accordance to AWWA C150, Class 55. Design pipe joint ends for rubber push-on gasket joints, conforming to AWWA C111.

Cast in or stamp on pipe manufacturer's mark, year of production, and "DI' or "DUCTILE.'

Pipe shall be cement mortar lined and have internal and external bituminous coats.

### B.2 Fittings

Fittings shall conform to AWWA C110, centrifugally cast in metal or sand-lined molds. Use of compact fittings conforming to AWWA C153 is acceptable. In no case shall fitting grade rating be less than adjoining pipe. Fittings shall be from same manufacturer as pipe.

Nuts and bolts for joints and fittings shall be corrosion resistant steel, NSS Technologies, Inc., Cor-Blue or approved equal.

### B.3 Polyethylene Sheeting for Pipe Corrosion Protection

Polyethylene sheeting conforming to ASTM D4976, Type I, Class B, color black, Grade E-1, 1200 psi tensile strength, minimum thickness of 8 mil. Tube diameter or sheet width shall conform to AWWA C105.

Furnish tape for polyethylene sheeting that is 2-inch wide, black tape with rubber adhesive and minimum 9 mil polyethylene backing. Tape shall be 3M™ Preservation Sealing Tape 481 or an approved equal.

### B.4 Trench Insulation

Extruded polystyrene board conforming to ASTM C578, Type V, rigid, closed cell type, with integral high density skin, Dow Chemical Company STYROFOAM™ Highload 100 or an approved equal.

Thermal Resistance: Typical 5 year aged value of R-5 per inch of thickness per ASTM C518.

Board Size: 24 x 96 x 2-inch thick. Square edges. Compressive Strength: Minimum 100 psi per ASTM D1621.

Water Absorption: 0.7 percent by volume maximum per ASTM D2842.

All bedding, cover and backfill materials shall meet City of Wauwatosa Standards and be approved by the City of Wauwatosa.

## C Construction

### C.1 General

In accordance to Wisconsin Statute 182.0175, "Damage to Transmission Facilities," Excavator, as defined in 182.0175(1)(bm), shall be solely responsible to provide advance notice to “Diggers Hotline, Inc.” (800) 242-8511 not less than three working days prior to commencement of any Excavation, as defined in the statute, required to perform work contained in this Project, and further, Excavator shall comply with all other requirements of this Statute relative to Excavation.

Before beginning excavation of trench, contractor shall uncover stub end of existing water main to which relay is to connect, to permit adjustments in line and grade and verify connection required.

### C.2 Installation of Ductile Iron Pipe

Join pipe and fittings by means of a compression type rubber gasket push-on joints conforming with AWWA C111.

Excavation and backfill for buried pipe shall conform to the Standard Specifications for Sewer and Water.

Remove lumped subsoil, boulders, and rock. If rock is encountered, remove to provide a clearance of at least 6 inches below and on each side of pipe, valves, and fittings.

Lay and maintain water mains to lines and grades established in the plans with fittings, valves, and hydrants at required locations.

Trench preparation shall proceed in advance of pipe installation only as far as can be backfilled in the same day.

Contractor shall not deviate from types of excavation indicated in the plans without prior concurrence of engineer except in case of roadways, driveways, and obstructions that may be indicated in the plans as open trench sections.

Place and shape bedding material to pipe, to a minimum depth of three inches under bell and four inches under spigot and compact to 95 percent modified proctor density.

Lower water main, fittings, valves, and hydrants carefully into trench, by means of derrick, ropes, or other suitable tools or equipment, to prevent damage to water main materials and protect coatings and linings.

Lay pipe with bell ends facing direction of laying. When grade exceeds 2 feet of rise per 100 feet of trench, bells shall face upgrade.

Provide holes for bells at each joint but no larger than necessary for joint assembly and assurance that pipe barrel will lie flat on trench bedding.

Trench bedding shall be true and even in order to provide support for full length of pipe barrel, except a slight depression may be provided to allow withdrawal of pipe slings or other lifting tackle.

If pipe laying crew cannot put pipe into trench and in place without getting earth into it, engineer may require placing, before lowering pipe into trench, a heavy, tightly woven, canvas bag of suitable size over each end of pipe and leaving there until connected to adjacent pipe.

Do not place debris, tools, clothing, or other materials in pipe during laying operations.

Assemble joint and bring pipe to correct line and grade as each length of pipe is placed in trench.

Take precautions to prevent foreign materials from entering joint space and carefully check joint recess for foreign material before installing gasket.

Remove lumps of clay, mud, cinders, and similar materials that may have accumulated on surface of pipe during storage or laying and encase pipe in polyethylene sheeting in accordance to AWWA C105.

Secure pipe in place with bedding material, placed by hand or equally careful means, keeping bell end open. Remove pipe and fittings that do not allow sufficient and uniform space for joints and replace with pipe and fittings of proper dimensions to ensure such uniform space.

Upon daily and temporary completion of pipe installation, close open ends of pipe by a water-tight plug or other means approved by engineer. This provision applies during daytime inactivity as well as overnight.

If water is in trench, maintain pipe seal in place until water level is lowered four inches below pipe invert.

Whenever it becomes necessary to lay a main over, under, or around a known obstruction, contractor shall furnish and install required fittings. Laying of such fittings will be paid for at linear foot price for each size of main. No additional compensation will be paid to contractor for any expenses incurred because of such obstruction.

When an unknown underground structure interferes with work to such an extent that an alteration of the plans is required and alteration results in a change in cost to contractor, engineer will issue a written order for such altered work, specifying basis of payment or credit for such altered work.

Keep interior and exterior of pipe clean and free from foreign material before installation. Provide necessary means to wipe, brush, swab, or air blast to remove any foreign material from interior of pipe as instructed by pipe manufacturer and as directed by engineer.

Provide and place approved bedding sand and cover under and above water service to depths indicated in the plans. Provide and install crushed concrete backfill to depths indicated. Compact bedding sand and cover, and crushed concrete backfill to 95% modified proctor density.

**C.3 Water Main Pressure and Leakage Testing**
Pressure Testing:

After pipe has been laid, subject newly laid pipe or any valved section thereof to a hydrostatic pressure of at least 1.5 times working pressure at point of testing.

Tests pressures shall:

- Not be less than 1.25 times working pressure at highest point along test section.
- Not exceed pipe or thrust restraint design pressures.
- Be of at least 2-hour duration.
- Not vary by more than plus or minus 5 psi for duration of test.
- Not exceed twice rated pressure of valves or hydrants when pressure boundary of test section includes closed gate valves or hydrants. NOTE: Do not operate valves in either direction at differential pressure exceeding rated pressure.
- Not exceed rated pressure of valves when pressure boundary of test section included closed, resilient seated gate valves or butterfly valves.

Slowly fill each valved section of pipe and apply specified test pressure, based on elevation of lowest point of line or section under test and corrected to elevation of test gage, by means of a pump connected to pipe acceptable to engineer.

Do not operate valves in either opening or closing direction at differential pressures above rated pressure.

Before applying specified test pressure, completely expel air from section of pipe under test.

If permanent air vents are not located at all high points, contractor shall install corporation cocks at such points to expel air as line is filled with water.

After all air has been expelled, close corporation cocks and apply test pressure. At conclusion of pressure test, remove corporation cocks and plug or leave in place at discretion of City of Wauwatosa.

Carefully examine exposed pipe, fittings, valves, hydrants, and joints during test.

Repair or replace any damaged or defective pipe, fittings, valves, or hydrants that are discovered following pressure test with sound material, and repeat test until it is satisfactory to City of Wauwatosa.

**C.4 Leakage Testing**

Leakage test may be conducted concurrently with pressure test.

Leakage shall be defined as quantity of water that must be supplied into newly laid pipe, or any valved section thereof, to maintain pressure within 5 psi of specified test pressure after air in pipeline has been expelled and pipe has been filled with water. Leakage shall not be measured by a drop in pressure in a test section over a period of time.

No pipe installation will be accepted if leakage is greater than that determined by following formula:

L = SD times Square Root of P, divided by 133,200

Where L is allowable leakage in gallons per hour; S is length of pipe tested in linear feet; D is nominal diameter of pipe in inches; and P is average test pressure during leakage test in pounds per square inch gage.

When hydrants are in test section, test shall be made against main valve in hydrant.

Acceptance shall be determined on basis of allowable leakage. If any test of laid pipe discloses leakage greater than that specified, contractor shall, at its own expense, locate and make repairs or replacement.

**C.5 Flushing and Disinfection**

Place calcium hypochlorite at upstream end of first section of pipe, at upstream end of each branch main, in first pipe section past valve, in hydrant leads, and at a minimum 500 foot interval in main.

Place the following amounts of calcium hypochlorite granules at beginning of main and at each 500-foot interval:

| Pipe Diameter (Inches) | Calcium Hypochlorite Granules (Ounces) |
|---|---|
| 4 | 0.5 |
| 6 | 1.0 |
| 8 | 2.0 |
| 12 | 4.0 |
| 16 and larger | 8.0 |

Contractor may use tablets if prior approval is obtained from engineer. Procedure shall be as follows:

- Place one 5-gram calcium hypochlorite tablet in each hydrant, hydrant branch, and other appurtenance.
- Place 5-gram calcium hypochlorite tablets in accordance to the following table in each section of pipe.

| Pipe Diameter | Length of Pipe Section (feet) | | | | |
|---|---|---|---|---|---|
| (Inches) | <13 | 18 | 20 | 30 | 40 |
| 4 | 1 | 1 | 1 | 1 | 1 |
| 6 | 1 | 1 | 1 | 2 | 2 |
| 8 | 1 | 2 | 2 | 3 | 4 |
| 10 | 2 | 3 | 3 | 4 | 5 |
| 12 | 3 | 4 | 4 | 6 | 7 |
| 16 | 4 | 6 | 7 | 10 | 13 |

Based on 3.25 grams available chlorine per tablet, any portion of tablet rounded to next higher integer.

Attach tablets to inside and top at each end of newly installed pipe with an NSF 61 approved adhesive such as ITW Redhead A7, or an approved equal.

Do not apply adhesive to tablet except on broad side to be attached to surface of pipe.

If tablets are attached before pipe section is placed in trench, mark their position on section so it can be readily determined that pipe is installed with tablets at top.

When installation is completed, fill main with water at a rate such that water within main will flow at a velocity no greater than one foot per second.

Contractor shall separately meter and pay for water for filling and initial flushing of main.

Contractor shall provide labor and material necessary to transfer water from source to main to be tested. Only local City of Wauwatosa Water Utility employees shall operate valves.

Water shall enter main and be tested at low point in system to force entrapped air out at high end through an available hydrant or air release valve.

Close upper end hydrant or valve after air is expelled and chlorinated water discharge is present. Take precautions to assure that entrapped air is eliminated.

Water shall remain in pipe for at least 24 hours or as defined by regulatory requirements. If water temperature is less than 40 degrees F, water shall remain in pipe for at least 48 hours.

Position valves so that strong chlorine solution in main being treated will not flow into water mains in active service.

Water from new mains must successfully pass bacteriological test in accordance to requirements of Wisconsin Department of Natural Resources.

Properly and securely brace and maintain excavation until successful testing, flushing, chlorinating, and sampling of main is completed.

Contractor shall be responsible for protecting any required excavation by means of proper barricades and lanterns during sampling and testing period.

Provide access to main for sampling as directed by engineer. Water Utility will take necessary samples of water and obtain laboratory tests of samples.

**D Measurement**

The department will measure Ductile Iron (DI) AWWA C-151 CL 55 Water Main 24-Inch by the linear foot, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.5000 | Ductile Iron (DI) AWWA C-151 CL 55 Water Main 24-Inch | LF |

Payment is full compensation for furnishing all materials; fittings, joint restraint, flushing, testing, concrete buttresses, shoring, temporary piling, traffic control, dewatering, polyethylene sheeting; trench insulation and for excavating, backfilling, and compaction.

## 345. Steel Casing w/ PVC 12-Inch Carrier, Item SPV.0090.5001; Steel Casing 30-Inch, Item SPV.0090.5005.

**A Description**

Bore and jack a steel casing pipe to the length and elevations and install PVC restrained joint pipe in accordance to AWWA C-900 as shown on the plans, in accordance to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition and addendums, conforming to West Allis Sewer and Water Specifications, Addendum February 2010, and as hereinafter provided.

**B Materials**

For casing pipe up to and including 24-inch diameter, provide extra strong, seamless carbon steel pipe conforming to ASTM A53, Grade B. For casing pipe over 24-inch diameter, provide extra strong, spiral welded steel pipe conforming to ASTM A139, Grade B. Provide all steel casing pipe fabricated in sections for welded field joints. Steel casing

shall have minimum yield strength of 35,000 psi and shall be spiral-welded steel pipe, uncoated, or equal. Steel casing shall have a minimum thickness as specified in the City Water Main Installation Specifications, Drawing No. 34. The casing pipe must have sufficient thickness to withstand both earth loads and live loads imposed from traffic. Provide engineer with manufacturer certification of steel casing pipe, including minimum yield strength, wall thickness, manufacturer, and ASTM Grade and class.

Provide a casing design for each required casing location. Verify the adequacy of each casing design by a professional engineer registered in the State of Wisconsin and be knowledgeable of the specific site conditions and requirements. Submit to the engineer for documentation one copy of each casing design that is signed and sealed by the same professional engineer verifying the design two weeks prior to installation.

Provide link seal modular seals, or approved equal on both ends of the steel casing pipe after pipe installation. The seals shall be watertight and the type of seal shall be approved by the engineer before backfilling. Seals shall have type 316 stainless steel bolts and stainless steel bolts nuts.

4-inch through 12-inch diameter Polyvinyl Chloride (PVC) water main pipe shall conform to the requirements of AWWA Standard C-900 SDR-18, with the same outside diameter as ductile iron pipe and integral elastomeric bell and spigot joints.

14-inch through 36-inch diameter Polyvinyl Chloride (PVC) water main pipe shall conform to the requirements of AWWA Standard C-905, SDR-18 or less, with the same outside diameter as ductile iron pipe and integral elastomeric bell and spigot joints.

Couplings shall be designed for use at or above the pressure class of the pipe with which they are utilized, and incorporate twin elastomeric sealing gaskets meeting the requirements of ASTM F 477. Joints are designed to meet the zero leakage test requirements of ASTM D 3139.

Pipe couplings shall be legibly and permanently marked in ink with critical information including nominal size, material type, dimension ratio, pressure class, applicable standards, manufacturer’s name or trademark, production record code, seal (mark) of testing agency verifying the suitability of the pipe material for potable water service

**C Construction**

Notify engineer in accordance to permit requirements before commencing casing installation. Provide complete installation at line and grade indicated on the drawings.

Prepare and submit a plan and obtain approval from the engineer for bore pit installation and insertion of the RCP carrier pipe into the casing. Include locations, dimensions, shoring, ground support, method of spoil removal, surface storage, grouting techniques for filling annular voids by over excavation if any, methods of dewatering, pullback procedure, ballasting, use of rollers, side booms and side rollers, coating protection, internal cleaning, internal gauging, and purging in the plan.

All welds shall be free from embedded scale and slag, and have a tensile strength across the weld not less than that of the thinner of the connected sections. Weld the joints of sections of casing pipe to be installed with a continuous circumferential weld.

Carrier pipe shall be centered and restrained using stainless steel factory-fabricated (wood not allowed) spacers in conformance with manufacturer's specifications. Provide spacers at intervals according to manufacturers' specifications with a minimum two spacers for each pipe length. Spacers shall be located within 2-feet of the end of casing. Design spacers to prevent uplifting of carrier pipe by hydrostatic forces and attach to pipe using stainless steel bands minimum (1-inch) wide. Spacers shall be a minimum 12-inch wide with a minimum 6 runners per spacer. Shell, risers and spacers shall be type 304 stainless steel or approved equal.

Store pipes on level ground free of sharp objects which could damage the pipe. Limit the stacking of the pipe to a height that will not cause excessive deformation of the bottom layers of pipes under anticipated temperature condition. Where necessary due to ground conditions, store the pipe on wooden sleepers, spaced suitably and of such widths as not to allow deformation of the pipe at the point of contact with the sleeper or between supports.

Pipe shall be homogenous throughout and free of voids cracks, inclusions and other defects and shall be uniform in color, density and other physical characteristics.

Plug all open ends of all sections of joined and/or installed pipe (not in service) at night to prevent anything from entering the pipe line or section. The practice of stuffing cloth or paper in the open ends of the pipe will be considered unacceptable.

Prepare and submit a plan to the engineer for approval for insertion of the water main into the casing. Include pullback procedure, ballasting, use of rollers, side booms and side rollers, coating protection, internal cleaning, internal gauging, and purging in the plan.

Install link seal modular seals, or approved equal on both ends of the steel casing pipe after pipe installation. The seals shall be watertight and the type of seal shall be approved by the engineer before backfilling. Seals shall have type 316 stainless steel bolts and stainless steel nuts.

Store excavated material from the boring and receiving pits in locations that minimize the interference with operations, minimize environmental damage, and protect adjacent areas from flooding, runoff and sedimentation.

Damage to utilities and the resulting repair, temporary service cost, etc., shall be at the contractor's expense. Backfill access pits in accordance to the appropriate specifications.

Properly sheet/shore all excavations in accordance to relevant specifications for trench safety systems. Any damage resulting from improperly shored excavations is at the contractor's expense. Obtain approval from the engineer upon completion.

**D Measurement**

The department will measure Steel Casing 30-Inch and, Steel Casing w/ PVC 12-Inch Carrier by the linear foot of pipe in place measured along the top centerline of the casing acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.5001 | Steel Casing w/PVC 12-Inch Carrier | LF |
| SPV.0090.5005 | Steel Casing 30-Inch | LF |

Payment is full compensation for furnishing sheeting; shoring; bracing; boring and receiving pit excavations; dewatering; casing pipe; removing shoring; removing sheeting; removing bracing; spacers; carrier pipe; end seals and lubricant work.

## 346. Water Main 12-Inch Ductile Iron Excavated Backfill, Item SPV.0090.5002.

**A Description**

This special provision describes furnishing and installing new water main along with select bedding and cover material, to proposed line and grade, including backfill and compaction as shown on the plans, in accordance to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition and addendums, conforming to West Allis Sewer and Water Specifications, Addendum February 2010, and as hereinafter provided.

**B Materials**

Provide Ductile Iron Thickness Class 53 pipe, conforming to AWWA C-151 and encased in polyethylene wrap as specified in Section 4.4.4 of the Standard Specifications for Sewer and Water in Wisconsin. Furnish all special fittings such as tees, cross over plugs, sleeves, offsets, reducers, bends, etc. Equip special fittings with rubber gasket joints and all fittings shall have a minimum pressure rating of 250 psi and conform to Sections 8.22.0 of the Standard Specifications for Sewer and Water in Wisconsin.

The city will furnish all hydrants, gate valves, and valve boxes. The hydrants and valves will be equipped with mechanical joints. Materials will be delivered to the job site by the West Allis Water Utility

Fittings are short bodied ductile iron and conform to ANSI A21.53 (AWWA C153). Fittings have an inside profile such that a seal can be made between the machined pipe end and the fitting bell with a rubber ring. The cost for fittings is incidental to the overall cost of construction.

Joints are push-on type rubber gaskets and conform to AWWA C-111.

Wrap all ductile iron water main pipe and fittings in double polyethylene wrap and lay with crushed limestone bedding and cover conforming to the bedding material section 8.43.6 in the Standard Specifications for Sewer and Water in Wisconsin.

Excavated backfill material shall conform to Section 8.43.5 of the Standard Specifications for Sewer and Water in Wisconsin.

Utilize mechanical vibration for compaction to achieve uniform consolidation in conformance with Section 2.6.14(b) of the Standard Specifications for Sewer and Water in Wisconsin.

**C Construction**

Complete all construction in conformance to AWWA C151 for Ductile Iron water main.

Unload and lower pipe and fittings into the trench. Handle all pipe, fittings and special castings to prevent breakage Do not drop into the trench or allow hard blows or jolts when being moved.

Excavate the trench to provide a smooth, compacted flat bottom to accommodate the pipe and the use of compaction equipment between the pipe outside diameter and trench wall. Place and compact pipe bedding material prior to setting the pipe. Minimum depth of bedding material beneath pipe bells shall be 4 inches.

Once pipe is set, cover the pipe with specified pipe cover material to a point 12 inches above top of pipe. Place and compact cover material in lifts.

Inspect the pipe for defects before lowering and while suspended. All materials used in the work must pass field inspection.

Lay pipe with the bell ends facing the direction of laying. When the grade exceeds 30 feet of rise per one hundred feet of trench, the bells shall face upgrade.

Prevent foreign material from entering the pipe while it is being placed in the line.

Remove water conforming to chapter 4.14.0 of the Standard Specifications for Sewer and Water in Wisconsin.

Promptly repair any and all damage caused by dewatering the work.

Cut pipe at right angles to the centerline of the pipe. Do not damage the pipe while cutting and leave smooth ends. Cut pipes with an approved mechanical cutter. The cut end of the pipe to be used with a rubber gasket joint shall be beveled by grinding or filing to match the angle and length of the factory bevel for that pipe. Remove all burrs and raised or sharp edges, prior to assembly, to avoid cutting the gasket.

Whenever it becomes necessary to lay a main over, under or around a known obstruction, furnish and install the required fittings. The laying of such fittings will be paid for at the unit price bid for each size of main. No additional compensation will be paid for any expenses incurred because of such obstruction.

Furnish special bends to provide angular deflections if excess deflection is required.

Provide a valve box and valve box adapter for every valve. The valve box shall not transmit shock or stress to the valve and shall be centered and plumb over the wrench nut of the valve, with the box cover flush with the surface of the finished grade or such level as may be directed.

Apply a protective coating of one heavy coat of Koppers Bitumastic 50 or 505 or equal to all straps, the rods, bolts, nuts and washers after installation. Provide a smooth coating without bare spots.

Polyethylene Wrap: Provide corrosion protection for all ductile iron tees, crosses, bends, etc. and all valves by use of polyethylene wrap. Provide polyethylene wrap conforming to AWWA C-105 or ANSI A21.5. Wrap shall be Class "C" - black, with a minimum nominal thickness of 0.008 inches (8 mils). Tape for securing the wrap shall be a thermoplastic material with a pressure sensitive adhesive face capable of bonding to metal, bituminous coating, polyethylene and PVC water main. Provide tape with a minimum thickness of 8 mils, and a minimum width of 1 inch.

Extend the wrap approximately 18 inches beyond all joints. Tape all seams securely. Do not damage the polyethylene wrap. Repair any rips or punctures in the wrap immediately.

Provide concrete thrust blocks for all bends, caps, tees, and plugs in accordance to section 4.3.13 of the Standard Specifications for Sewer and Water in Wisconsin. In lieu of concrete thrust blocks, Meg-a-Lugs may be used. Where Meg-a-Lugs are employed, bends, tees, caps and plugs shall also be blocked with solid concrete blocks from trench wall to fitting.

Make the connection of new water main to existing water main in accordance to the requirements of Chapter 4.14.0 of the Standard Specifications for Sewer and Water in Wisconsin. by cutting and removing existing water main and installing new water main. Make connection of new water main to existing water main through use of solid mechanical joint sleeve. After connection of the new water main to the existing water main, the valve shall remain closed until the new water main has passed all testing and safe bacteriological samples received. Prevent backflow into the existing water system when filling and flushing the new water main. Only City of West Allis Water Department personnel shall operate valves.

Expose utilities, which cross the proposed facility prior to construction to allow engineer to check for conflicts. Protect utilities from disturbance.

Whenever water mains cross over sewers, the water main shall be laid at such an elevation that the bottom of the water main is at least 6 inches above the top of the sewer. Whenever water mains cross under sewers, a minimum vertical separation of 18 inches shall be maintained between the top of the water main and the bottom of the sewer. At crossings, one full length of water pipe shall be centered on the sewer so that both joints will be as far from the sewer as possible.

The City of West Allis will conduct all pressure and leakage tests. Provide a 2-inch diameter standpipe and fittings as required by the city for flushing and testing. Two tests will be made on any one section of the main at the city's expense and additional tests, when required, will be at the expense of the contractor. No disinfecting solution shall be allowed to drain into storm sewer or wetland

The pressure test must follow a successful bacteriological test. Make the necessary connections to ensure adequate flow to flush the new main.

Flushing Main: The City of West Allis Water Utility will flush all new water mains before taking water samples for bacteriological testing.

Rechlorination: When unsatisfactory results are obtained in accordance to flushing and chlorination under 4.3.12 alone, the city will do all necessary re-chlorination and bill the contractor for time, labor and material.

**D Measurement**

The department will measure Water Main 12-Inch Ductile Iron (Excavated Backfill) by the linear foot of pipe in place measured along the top centerline of pipe including fittings and valves, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.5002 | Water Main 12-Inch Ductile Iron (Excavated Backfill) | LF |

Payment is full compensation for furnishing all materials including pipes, gaskets, special gaskets where required, and lubricant; tees, bends, crosses, sleeves and reducers of size indicated on plans; polyethylene wrap on ductile iron pipe and fittings, bedding material, cover material, and granular backfill material; for furnishing all excavation, dewatering, and sheathing and shoring; for forming foundation and pipe laying; for making all connections to existing water main; for furnishing all pipe and fitting restraint and thrust blocking; for backfilling, mechanical compaction, and compaction testing; for removing sheeting and shoring; for disposal of all surplus or waste material; and for site cleanup.

## 347. Water Main 12-Inch PVC Excavated Backfill, Item SPV.0090.5003; 16-Inch PVC Excavated Backfill, Item SPV.0090.5006.

### A Description

This special provision consists of furnishing and installing water main as shown on the plans, in accordance to standard spec 204, the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition and addendums, conforming to West Allis Sewer and Water Specifications, Addendum February 2010, and as hereinafter provided.

### B Materials

4-inch through 12-inch diameter Polyvinyl Chloride (PVC) water main pipe shall conform to the requirements of AWWA Standard C-900 SDR-18, with the same outside diameter as ductile iron pipe and integral elastomeric bell and spigot joints.

14-inch through 36-inch diameter Polyvinyl Chloride (PVC) water main pipe shall conform to the requirements of AWWA Standard C-905, SDR-18 or less, with the same outside diameter as ductile iron pipe and integral elastomeric bell and spigot joints.

Trace wire for PVC pipe shall be solid copper wire No. 10 AWG with type THWN insulation in blue color, suitable for underground installation. Tracer wire material type, use, placement, and testing shall conform to Chapter 2.11 in the Standard Specifications for Sewer and Water in Wisconsin, latest edition with addendums. Materials to make and protect wire splices shall be in accordance to File No. 24B, Part IX of the Standard Specifications for Sewer and Water in Wisconsin, latest edition with addendums. Trace wire access box shall consist of cast iron top and lid with ABS plastic bottom section. Lid shall be tamperproof with standard AWWA size cast in pentagonal bolt, opened with standard pentagonal head key wrench. Trace wire access box shall be Valvco, Inc., or preapproved equal.

Fittings shall be American made compact ductile iron mechanical joint fittings with Cor-Blue bolts and nuts meeting the requirements of AWWA Standard C-153. Mechanical joint anchoring tees are required for all hydrant leads.

Buttresses for tees, plugs, ends, caps, and hydrants may be precast concrete blocks with Mega-Lug pipe restraints, and shall conform to the Standard Specifications for Sewer and Water in Wisconsin, latest edition with addendums. All bends regardless of size shall have concrete buttresses.

Bedding material shall conform to Section 8.43.2 of the Standard Specifications for Sewer and Water in Wisconsin, latest edition with addendums.

Cover material shall conform to Section 8.43.3 of the Standard Specifications for Sewer and Water in Wisconsin, latest edition with addendums.

Granular backfill material shall conform to Section 8.43.4 of the Standard Specifications for Sewer and Water in Wisconsin, latest edition with addendums. Granular backfill material shall be compacted by means of mechanical vibration in one foot lifts, compacted to minimum density of 95% Standard Proctor, or by water jetting to achieve uniform consolidation in conformance with Section 2.6.14(a) of the Standard Specifications for Sewer and Water in Wisconsin, latest edition with addendums.

Spoil backfill material shall conform to section 8.43.5 of the Standard Specifications for Sewer and Water in Wisconsin, latest edition with addendums. Compact spoil backfill material by means of mechanical vibration in one-foot lifts, compacted to minimum density of 95% Standard Proctor, or by water jetting to achieve uniform consolidation in conformance with Section 2.6.14(a) of the Standard Specifications for Sewer and Water in Wisconsin, latest edition with addendums.

Slurry backfill material shall conform to section 8.43.8 of the Standard Specifications for Sewer and Water in Wisconsin, latest edition with addendums,

**C Construction**

**C.1 General:**

Construct PVC water main in conformance with AWWA C600.

**C.2 Removal:**

The contractor is responsible for the safe methods and sequence of controlled removal operations. As directed by the engineer, completely remove the existing water main to the extent required to avoid interfering with new construction work. Upon removal, water main piping becomes the contractor's property.

**C.3 Installation:**

Provide sufficient and adequate equipment on the site of the work for unloading and lowering pipe and fittings into the trench. Handle all pipe, fittings and special castings so as to prevent breakage. Under no circumstances shall they be dropped into the trench or so handled as to receive hard blows or jolts when being moved.

**C.4 Field Inspection of Materials:**

Before lowering and while suspended, inspect the pipe or fittings for defects. All materials used in the work must pass field inspection.

**C.5 Direction of Laying:**

Unless otherwise ordered, pipe shall be laid with the bell ends facing the direction of laying. When the grade exceeds 30 feet of rise per one hundred feet of trench, the bells shall face upgrade.

**C.6 Joining of Pipe:**

Prevent foreign material from entering the pipe while it is being placed in the line.

**C.7 Removal of Water:**
See the Standard Specifications for Sewer and Water in Wisconsin, latest edition with addendums chapter 4.14.0. Promptly repair any and all damage caused by dewatering the work.

**C.8 Cutting of Pipe:**
Adhere to the manufactures instructions for all necessary pipe cuts. Cut pipe at right angles to the centerline of the pipe. Cutting pipe in a neat workmanlike manner without damage to the pipe and so as to leave smooth ends. Cut all pipes with an approved mechanical cutter. The cut end of the pipe to be used with a rubber gasket joint shall be beveled by grinding or filing to match the angle and length of the factory bevel for that pipe. Remove all burrs and raised or sharp edges, prior to assembly, to avoid cutting the gasket.

**C.9 Obstructions in Line or Grade:**
Whenever it becomes necessary to lay a main over, under or around a known obstruction, the contractor will furnish and install the required fittings. The laying of such fittings will be paid for at the unit price bid for each size of main. No additional compensation will be paid to the contractor for any expenses incurred because of such obstruction. When an unknown underground structure interferes with the work to such an extent that an alteration of the plan is required, and which such alteration results in a change in the cost to the contractor, the engineer will issue a written change order for such altered work, specifying the basis of payment or credit for such altered work.

**C.10 Buttresses and Lugged Retainer Glands:**
Approved mechanical joint lugged retainer glands may be used with PVC water main. The gland shall be such that it can replace the standardized mechanical joint gland and can be used with the standardized mechanical joint bell conforming to ANSU AWWA A2 1.53/C153 of latest revision. Twist off nuts, sized same as tee-head colts, shall be used to ensure proper actuating of restraining devices. The retainer glands shall have a pressure rating equal to that of the pipe on which it is used. The retainer glands shall have been tested to UNI-B-13-92, be listed by Underwriters Laboratories, and be approved by Factory Mutual. The restraint shall be EBAA iron series 2000 PV or approved equal.

**C.11 Joint Deflection:**
The maximum allowable deflection will be as described in the Standard Specifications for Sewer and Water in Wisconsin, latest edition with addendums. If excess deflection is required, special bends shall be furnished to provide angular deflections.

**C.12 Setting Valves:**
Provided and install valves in water mains in locations where shown on the plans. Provide a valve box and valve box adapter for every valve. The valve box shall not transmit shock or stress to the valve and shall be centered and plumb over the wrench nut of the valve, with the box cover flush with the surface of the finished grade or such level as may be directed.

**C.13 Tracer Wire:**
10 gauge solid copper tracer wire shall be installed and secured directly above all utilities installed on this project. The copper wire shall be securely wrapped around the corporation a minimum of three turns and extended above and along the entire length of the pipe and shall be run up inside all valve boxes and hydrants, then wrapped a minimum of six turns up to and terminating at the surface of the ground. At no time shall the copper wire be placed below the pipe. The costs for the installation of the copper wire shall be merged into the unit prices bid for the pipe and no additional compensation shall be allowed.

**C.14 Protective Coating:**
Apply a protective coating of one heavy coat of Koppers Bitumastic 50 or 505 or equal to all straps, the rods, bolts, nuts and washers after installation. The coating shall be smooth, tough, tenacious and impervious to water without any tendency to scale off and should not be brittle. Care should be taken that the coating shall be complete without bare spots.

**C.15 Polyethylene Wrap:**
Provide corrosion protection for all ductile iron tees, crosses, bends, etc. and all valves by use of polyethylene wrap. The polyethylene wrap shall conform to AWWA C-105 or ANSA A21.5. Wrap shall be Class "C" - black, with a minimum nominal thickness of 0.008 inches (8 mils). Tape for securing the wrap shall be a thermoplastic material with a pressure sensitive adhesive face capable of bonding to metal, bituminous coating, polyethylene and PVC water main. Tape shall have a minimum thickness of 8 mils, and a minimum width of 1 inch.

The wrap shall extend approximately 18 inches beyond all joints. Securely tape all seams. Place the cover material with care so as to prevent damage to the polyethylene wrap. Repair any rips or punctures in the wrap immediately.

**C.16 Exposing Utilities:**
Expose utilities, which cross the proposed facility prior to construction to allow engineer to check for conflicts. Protect utilities from disturbance throughout work.

Whenever water mains cross over sewers, the water main shall be laid at such an elevation that the bottom of the water main is at least 6 inches above the top of the sewer. Whenever water mains cross under sewers, a minimum vertical separation of 18 inches shall be maintained between the top of the water main and the bottom of the sewer. Center one full length of water pipe on the sewer at crossings so that both joints will be as far from the sewer as possible.

**C.17 Disinfection:**
Disinfect all new water mains prior to placing in service. Disinfection solution shall be maintained in mains a minimum of 24 hours.

Clean all pipe at time of installation, which should result in a prompt safe water sample. Delays in disinfection shall in no way create liability on the part of the city. Flush new water main under engineer’s supervision. No disinfection solution shall be allowed to drain into storm sewer or wetland.

**C.18 Insulation:**
Where cover over the proposed water main is less than 6 feet, polystyrene insulation shall be installed to a thickness for an equivalent of 6 feet of cover per Section 4.17(a) of the Standard Specifications for Sewer and Water in Wisconsin, latest edition with addendums. Insulation is considered incidental to this work.

**D Measurement**
The department will measure Water Main (Inch) PVC Excavated Backfill by the linear foot put in place, measured along the centerline of pipe, from center-to-center of junctions and fittings, acceptably completed. Quantity to be measured shall include the construction through valves and other fittings.

**E Basis of Payment**
The department will pay for the measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.5003 | Water Main 12-Inch PVC Excavated Backfill | LF |
| SPV.0090.5006 | Water Main 16-Inch PVC Excavated Backfill | LF |

Payment is full compensation for saw cutting, excavation, bedding, covering, backfilling, pipe laying, plugs, fittings, bulkheads, trust restraint, sheathing, shoring, dewatering, connections to existing facilities where indicated on plans, abandoning/removal of existing facilities including valves, testing, disinfection, cleanup, restoration.

## 348. Remove Water Main Item SPV.0090.5004.

**A Description**
This special provision describes the demolition and removal of existing water main piping, fittings, valves and all appurtenances within the existing casing pipe and disposing of all resulting materials as shown in the plans, in accordance to standard spec 204 and as hereinafter provided.

**B (Vacant)**

**C Construction**
The contractor is responsible for the safe methods and sequence of controlled removal operations. As directed by the engineer, completely remove the existing water main to the extent required to avoid interfering with new construction work. Upon removal, water main piping becomes the contractor's property.

**D Measurement**
The department will measure Remove Water Main by the linear foot, acceptably completed, measured along the centerline of pipe, from one end of existing casing pipe to the other end of existing casing pipe. Quantity to be measured shall include the removal through valves and other fittings.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.5004 | Remove Water Main | LF |

Payment is full compensation for removing all water main as per the plans, details, schedules, and these special provisions, including but not limited to cutting and removal of pipe, fittings, spacers, annular fill, debris, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the contract work..

## 349. Water Main 16-Inch PVC Carrier, Item SPV.0090.5007.

**A Description**

This special provision describes the installation of 16-inch water main pipe to the length and elevations as shown on the plans, in accordance to AWWA C-905 and the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition and addendums, conforming to West Allis Sewer and Water Specifications, Addendum February 2010, and as hereinafter provided.

**B Materials**

Provide Link seal modular seals, or approved equal on both ends of the steel casing pipe after pipe installation. Provide watertight seals and obtain approval from the engineer before backfilling. Provide seals with type 316 stainless steel bolts and 316 stainless steel nuts.

Provide Polyvinyl Chloride (PVC) water main pipe conforming to the requirements of AWWA Standard C-905, SDR-18 or less, with the same outside diameter as ductile iron pipe and integral elastomeric bell and spigot joints.

Design couplings for use at or above the pressure class of the pipe with which they are utilized, and incorporate twin elastomeric sealing gaskets meeting the requirements of ASTM F 477. Joints are designed to meet the zero leakage test requirements of ASTM D 3139.

Pipe couplings shall be legibly and permanently marked in ink with critical information including nominal size, material type, dimension ratio, pressure class, applicable standards, manufacturer's name or trademark, production record code, seal (mark) of testing agency verifying the suitability of the pipe material for potable water service

**C Construction**

Prepare and submit a plan to the engineer for approval for insertion of the PVC water main into the casing. Include pullback procedure, ballasting, use of rollers, side booms and side rollers, coating protection, internal cleaning, internal gauging, and purging in the plan.

16-inch PVC carrier pipe (C-905, SDR 18) shall be restrained using stainless steel factory-fabricated (wood not allowed) spacers. Provide minimum three spacers for each pipe length. Design spacers to prevent uplifting of carrier pipe by hydrostatic forces and attach to pipe using stainless steel bands minimum (1-inch) wide.

Store pipes on level ground free of sharp objects which could damage the pipe. Limit the stacking of the pipe to a height that will not cause excessive deformation of the bottom layers of pipes under anticipated temperature condition. Where necessary due to ground conditions, store the pipe on wooden sleepers, spaced suitably and of such widths as not to allow deformation of the pipe at the point of contact with the sleeper or between supports.

Pipe shall be homogenous throughout and free of voids cracks, inclusions and other defects and shall be uniform in color, density and other physical characteristics.

Plug all open ends of all sections of joined and/or installed pipe (not in service) at night to prevent anything from entering the pipe line or section. The practice of stuffing cloth or paper in the open ends of the pipe will be considered unacceptable.

Install link seal modular seals, or approved equal on both ends of the steel casing pipe after pipe installation. The seals shall be watertight and the type of seal shall be approved by the engineer before backfilling. Seals shall have type 316 stainless steel bolts and 316 stainless steel nuts.

Properly sheet/shore all excavations in accordance to relevant specifications for trench safety systems. Any damage resulting from improperly shored excavations is at the contractor's expense. Obtain approval from the engineer upon completion.

**D Measurement**

The department will measure Water Main 16-Inch PVC Carrier by the linear foot of pipe in place measured along the top centerline of the casing, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.5007 | Water Main 16-Inch PVC Carrier | LF |

Payment is full compensation for dewatering, for installing carrier pipe, spacers, end seals and lubricant work; for installing fittings; for concrete base, buttresses, and anchors; for bulkheading, capping and abandoning existing water mains; for sealing joints and making connections to new or existing facilities; including bedding material; for cleaning out the site of the work

## 350. Abandoning Sanitary Sewer 15-Inch, Item SPV.0090.5101; Abandoning Sanitary Sewer 16-Inch, Item SPV.0090.5102.

### A Description

This special provision describes abandoning an existing MMSD sanitary sewer in place as shown in the plans.

### B Materials

#### B.1 General

All materials and work required to abandon existing sanitary sewers will conform to the SSSW. Removing sewers and properly bulkheading can be completed in lieu of abandoning in place.

#### B.2 Cellular Concrete

Provide cellular concrete meeting the following specifications: 1 part cement, 1 part fly ash, 8 parts sand, or an approved equal, and water. Provide cement meeting the requirements of standard spec 501.2.1 for Type 1 Portland Cement. Provide sand meeting the requirements of standard spec 501.2.5.3. Provide water meeting the requirements of standard spec 501.2.4.

### C Construction

#### C.1 General

Notify Larry Anderson (MMSD), (414) 225-2241, at least three days in advance of the commencement of construction. Notify, in writing, all businesses and property owners/occupants to inform them of the project and to inform them of any temporary sewer service disconnections. Provide and maintain all necessary by-pass pumping for sanitary sewer abandonment.

Provide by-pass pumping of wastewater around construction zone during working hours. During non-work hours, provide temporary connection of replacement sanitary sewer to existing sanitary sewer to provide uninterrupted sanitary sewer service. A "Notice of Bypass Intent" form must be submitted to MMSD for review and approval prior to any by-pass pumping activities.

Abandon sewers in accordance to section 3.2.24 of the SSSW. Bulkhead sewers that are to be abandoned in place with an 8-inch brick or concrete wall. Fill all sewers with cellular concrete.

#### C.2 Blind Connection

Abandoning Sanitary Sewer 16-Inch includes abandoning the blind connection to the 39" special section MMSD sewer as shown in plans. The 16-inch sewer shall be bulkheaded immediately adjacent to the blind connection.

Install an inflatable plug from the existing upstream manhole to the point of the 16" diameter pipe connection to the 39" special section. Once the inflatable plug is installed fill the 16" pipe with cellular concrete and abandon in place. Care shall be taken

to ensure that fill material does not enter the 39" special section. Restrain the inflatable plug to ensure that it does not move during the filling of the 16" pipe.

**D Measurement**

The department will measure Abandoning Sanitary Sewer 15-Inch and Abandoning Sanitary Sewer 16-Inch by the linear foot of sewer, acceptably completed. The pipe will be measured horizontally to the nearest foot, through all manholes designated to be abandoned, from face to face of bulkheads, including the bulkhead thickness.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.5101 | Abandoning Sanitary Sewer 15-Inch | LF |
| SPV.0090.5102 | Abandoning Sanitary Sewer 16-Inch | LF |

Payment is full compensation for providing all materials including all excavating; for bulkheading, abandoning existing sanitary sewer with cellular concrete, plugging and abandoning blind connection; for providing backfill material; and for providing and maintaining all necessary bypass pumping.

## 351. MMSD Sanitary Sewer 16-Inch PVC C905 DR18, Item SPV.0090.5103.

**A Description**

This special provision describes furnishing and installing sanitary sewer along with select bedding and cover material, to proposed line and grade, including granular backfill and compaction, in accordance to the plans.

**B Materials**

**B.1 General**

Sanitary sewer main pipe shall be polyvinyl chloride (PVC) meeting the specifications of AWWA C905. All PVC sewer pipe shall have maximum dimension ratio (DR) of 18. Provide a minimum pipe stiffness of 364 psi when tested in accordance to ASTM D2412.

Provide PVC material with a cell classification 12454 as defined in ASTM D1784 with minimum modulus of elasticity of 400,000 psi in tension.

Provide pipe with elastomeric gasket bell and spigot joint conforming to ASTM D3139 sealed by a rubber gasket conforming to ASTM F477. Bells shall be formed integrally with the pipe.

Pipe shall be homogenous throughout and free of voids cracks, inclusions and other defects and shall be uniform in color, density and other physical characteristics.

Provide connections to manholes as detailed in plans. Provide FERNCO style connectors and adapters for transitions to other types of pipe. Provide concrete collars for connections in locations as specified on the plans.

**B.2 Bedding**
Bedding section shall conform Class "C" bedding of section 3.2.6(a) and (i) and File No. 3 of the SSSW. Bedding material shall conform to Table 32 of Section 8.43.2 of the SSSW. Cover material shall be of the same material as the bedding.

**B.3 Concrete**
Concrete shall be Class A Concrete conforming to the requirements of Chapter 8.35.0 and Table 29 of Chapter 8 of the SSSW.

**B.4 Steel Reinforcement**
Steel reinforcement shall conform to C-478 requirements of ASTM specifications.

**B.5 Bentonite Waterstops**
Bentonite waterstops shall be 1-inch by 3/4 inch size flexible strip of bentonite waterproofing compound with an adhesive surface on one side of the strip, waterstop Type RX.

**B.6 Bonding Agent**
Bonding agent for use on existing concrete surfaces shall be Sikastix 370, Sikadur Hi-Mod; Horn Co. Epoxtite Binder 2385; or equal.

**B.7 Backfill**
Backfill shall be granular backfill in conformance to section 8.43.4 of the SSSW unless specified otherwise on plans. Consolidate backfill in conformance to section 2.6.14(b) of the SSSW.

**C Construction**
**C.1 General**
Notify Larry Anderson (MMSD), (414) 225-2241, at least 3 days in advance of the commencement of construction.

Construct sanitary sewer as shown in the plans and in conformance to chapter 3 of the SSSW.

Provide sufficient and adequate equipment on the site of the work for unloading and lowering pipe and fittings into the trench. Store pipes on level ground free of sharp objects which could damage the pipe. Limit the stacking of the pipe to a height that will not cause excessive deformation of the bottom layers of pipes under anticipated temperature condition. Where necessary due to ground conditions, store the pipe on wooden sleepers, spaced suitably and of such widths as not to allow deformation of the pipe at the point of contact with the sleeper or between supports.

Inspect all pipe and fittings prior to placing to ensure no cracked, broken, or otherwise defective materials are being used. Clean ends of pipe thoroughly. Remove foreign matter and dirt from inside of pipe and keep clean during and after laying.

Provide by-pass pumping of wastewater around construction zone during working hours.

During non-work hours, provide temporary connection of replacement sanitary sewer to existing sanitary sewer to provide uninterrupted sanitary sewer service. A "Notice of Bypass Intent" form must be submitted to MMSD for review and approval prior to any by-pass pumping activities.

Fill the excavation with granular backfill in conformance to section 2.6.2 of the SSSW unless specified otherwise on plans, to existing surface or to appropriate depth for pavement restoration. Consolidate backfill in conformance to section 2.6.14(b) of the SSSW.

Existing utilities shall be protected from damage and all pipes crossed shall be supported across the trench excavation. Should any utility be damaged, it shall be repaired to the satisfaction of the utility owner at no additional expense.

WE Energies-Electric has underground and overhead facilities within the project limits. Be aware of power pole locations and provide appropriate shoring and/or sheeting to complete the work without damage to power poles. WE Energies shall be notified to support any poles requiring support during construction activities. This shall be coordinated by the contractor and completed at no additional cost to the project.

**C.2 Testing**

Perform a leakage test in accordance to the requirements of the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition (SSSW) chapter 3.7.0 (Leakage Test of Sanitary Sewers). Any section of the completed sewer failing to pass the test shall be repaired and retested.

Provide a deflection test for all PVC sewer piping in accordance to requirements of Section 3.2.6 of the SSSW for 7.5% deflection of the base inside diameter. The deflection of the sewer pipe shall not exceed 7.5 percent when tested with a mandrel specifically designed for the type and size of pipe installed. Any section of the completed sewer failing to pass the test shall be repaired and retested.

**C.3 Inspection**

Televise sanitary sewer post installation in accordance to section 7.1.2 of the SSSW for review and acceptance. All defects discovered during the post-installation television inspection shall be corrected and the sewer shall be re-televised. Provide MMSD with copies of the post-installation DVD examination and report of the sewer. These items will become the property of MMSD. Televising sanitary sewer is incidental to the sanitary sewer pipe bid item.

**D Measurement**

The department will measure MMSD Sanitary Sewer 16-Inch PVC C905 DR18 by the linear foot of sewer acceptably completed. The pipe will be measured horizontally to the nearest foot, from center-to-center of manholes, to the end of the new pipe, or to the outside face of structures, whichever is applicable.

**E Payment**

The department will pay for measured quantities at the contract price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.5103 | MMSD Sanitary Sewer 16-Inch PVC C905 DR18 | LF |

Payment is full compensation for furnishing and installing all materials, including pipes, fittings, gaskets and lubricant, bedding material, cover material, and granular backfill material; for furnishing all excavation, dewatering, by-pass pumping, sheeting and shoring, forming foundation, and pipe laying; for making all connections including furnishing and installing all necessary adapters, including temporary connections; for protecting and repairing damage to existing utilities; for backfilling, mechanical compaction, and compaction testing; for removing sheeting and shoring; for disposal of all surplus or waste material; for furnishing and installing all testing equipment and materials; for furnishing all testing including leakage testing, deflection testing, for televising; and for site cleanup work in accordance to the contract. The cutting and removal of existing sanitary sewer pipe and manholes from within the trench of replacement sanitary sewer will not be paid for separately, but shall be considered incidental to the item.

## 352. Steel Casing w/ 15-Inch Sanitary Sewer Carrier, Item SPV.0090.5104.

**A Description**

This special provision describes installing a steel casing pipe to the length and elevations as shown on the plans and installing carrier pipe in accordance to the plans.

**B Materials**

**B.1 General**

Casing pipe shall be made of steel conforming to ASTM A-139 grade B, ASTM A 53 grade B or approved equal. Steel pipe shall have minimum yield strength of 35,000 psi, and shall be spiral-welded steel pipe, uncoated, or equal. The casing pipe shall be a minimum of 36-inch diameter unless specified otherwise in plans. The casing pipe must have sufficient thickness to withstand both earth loads and live loads imposed from traffic. Contractor will provide the engineer with manufacturer certification of steel casing pipe, including minimum yield strength, wall thickness, manufacturer, and ASTM Grade and class.

Provide a casing design for each required casing location. The adequacy of each casing design shall be verified by a professional engineer registered in the State of Wisconsin and be knowledgeable of the specific site conditions and requirements. Submit to the engineer

for documentation one copy of each casing design that is signed and sealed by the same professional engineer verifying the design two weeks prior to installation.

Sanitary sewer carrier pipe shall be polyvinyl chloride (PVC) meeting the requirements of standard specifications for Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings of the ASTM D3034 for pipe sizes 4-inch through 15-inch. All PVC sewer pipe shall have maximum standard dimension ratio (SDR) of 35. Provide PVC material with a cell classification 12454-B or 12454-C as defined in ASTM D1784 with minimum modules of elasticity of 400,000 psi in tension. Provide a minimum pipe stiffness of 46 psi when tested in accordance to ASTM D2412.

Provide carrier pipe with elastomeric gasket bell and spigot joint conforming to ASTM D3212 sealed by a rubber gasket conforming to ASTM F477. Bells shall be formed integrally with the pipe.

Casing spacer shall be made from type 304 stainless steel of a minimum 14 gauge thickness with a shell section lined with a minimum 0.09" thick, ribbed PVC extrusion that prevents slippage. Bearing surfaces (runners) shall be ultra high molecular weight polyethylene (UHMW) to provide abrasion resistance and a low coefficient of friction (0.12). The runners shall be attached to support structures (risers) at appropriate positions to properly support the carrier pipe with the casing pipe and to ease installation. The runners shall be mechanically bolted to the riser. Risers shall be made of type 304 stainless steel, 10 gauge. Bottom risers 6" and over in height shall be reinforced. All reinforcing plates shall be type 304 stainless steel, 10 gauge.

Link-seal modular seals, or approved equal shall be provided on both ends of the Steel Casing pipe after pipe installation. The seals shall be watertight and the type of seal shall be approved by the engineer before backfilling. Seals shall have type 316 stainless steel bolts and nuts.

**B.2 Bedding**

Bedding section shall conform Class "C" bedding of section 3.2.6(a) and (i) and File No. 3 of the SSSW. Bedding material shall conform to Table 32 of Section 8.43.2 of the SSSW. Cover material shall be of the same material as the bedding.

**B.3 Backfill**

Backfill shall be granular backfill in conformance to section 8.43.4 of the SSSW unless specified otherwise on plans. Consolidate backfill in conformance to section 2.6.14(b) of the SSSW.

**C Construction**

**C.1 General**

Notify Larry Anderson (MMSD), 414-225-2241, at least 3 days in advance of the commencement of construction at least.

WE Energies-Electric has underground and overhead facilities within the project limits. Be aware of power pole locations and provide appropriate shoring and/or sheeting to complete the work without damage to power poles. WE Energies shall be notified to support any poles requiring support during construction activities. This shall be coordinated by the contractor and completed at no additional cost to the project.

Damage to utilities and the resulting repair, temporary service cost, etc., shall be borne by the contractor.

Store excavated material from the boring and receiving pits in locations that minimize the interference with operations, minimize environmental damage, and protect adjacent areas from flooding, runoff and sedimentation.

Properly sheet/shore all excavations in accordance to relevant specifications for trench safety systems. Any damage resulting from improperly shored excavations shall be corrected to the satisfaction of the engineer with no compensation due to the contractor.

Provide by-pass pumping of wastewater round construction zone during working hours.

During non-work hours, provide temporary connection of replacement sanitary sewer to existing sanitary sewer to provide uninterrupted sanitary sewer service. A "Notice of Bypass Intent" form must be submitted to MMSD for review and approval prior to any by-pass pumping activities.

Consolidate all backfill by mechanical compaction per specification 2.6.14(b) of the SSSW. Special compaction equipment and measures are required where standard compaction equipment cannot be utilized. Compaction shall achieve uniform consolidation in conformance with section 2.6.14(b) of the SSSW.

**C.2 Jacked Pipe Casing Installation**

Where jacked pipe is shown on MMSD sanitary sewer plans, install the casing and carrier pipe using pipe ramming methods. Jacked pipe excavation includes the removal of natural soil, rubble, or fill materials from the jacked pipe face regardless of the means necessary to break the material for removal. Jacked pipe includes removal of cobbles up to 4 inches in any dimension regardless of the means necessary to break these cobbles for removal.

Removal of obstructions will be paid as a separate bid item, Obstructions Trenchless Utility Construction. An obstruction occurs when an object is encountered at the heading of a tunnel that stops or significantly inhibits forward progress because it is too large to be broken or ingested through the machine. The obstruction will require removal by supplemental means, such as drilling and splitting through the heading or from an excavation made from outside the tunnel.

Prepare and submit a plan to the engineer for approval for bore pit installation and jacked pipe casing installation means and methods. Submittal shall include detailed information on bore pit size and location, type and size of equipment, shaft construction, pipe ramming

methods, means for controlling grade line, lubrication, welding, means for preventing voids, over-ream, and means to fill over-ream voids, and any information necessary for casing installation. The means and methods of construction shall be capable of controlling groundwater at the shafts and at controlling water and soil infiltration at the jacked pipe face and along the alignment. If the means and methods are not effective in controlling such infiltration, other means and methods shall be selected and it shall be demonstrated to engineer that water and soil infiltration can be controlled, all at no additional cost to bid item.

Limit over-reaming thickness to ½-inch. The contractor shall bear all the costs associated with sidewall over-reaming and concrete required to fill the additional over-reaming volume of excavation.

Weld the joints of sections of casing pipe to be installed with a continuous circumferential weld.

**C.3 Carrier Pipe Installation**

Prepare and submit a plan to the engineer for approval for insertion of the carrier pipe into the casing. Include locations, dimensions, shoring, ground support, method of spoil removal, surface storage, grouting techniques for filling annular voids from over excavation if any, methods of dewatering, pullback procedure, ballasting, use of rollers, side booms and side rollers, coating protection, internal cleaning, internal gauging, and purging in the plan.

Carrier pipe shall be centered and restrained using stainless steel factory-fabricated (wood not allowed) spacers in conformance with manufacturer's specifications. Provide spacers at intervals according to manufacturers' specifications with a minimum three spacers for each pipe length. Attach to pipe using stainless steel bands minimum (1 inch) wide. Spacers shall be a minimum 8" wide with a minimum 4 runners per spacer.

Install link seal modular seals, or approved equal on both ends of the Steel Casing pipe after pipe installation. The seals shall be watertight and the type of seal shall be approved by the engineer before backfilling. Seals shall have type 316 stainless steel bolts and nuts.

**C.4 Testing**

Perform a leakage test in accordance to the requirements of the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition (SSSW) chapter 3.7.0 (Leakage Test of Sanitary Sewers). Any section of the completed sewer failing to pass the test shall be repaired and retested.

Provide a deflection test for all PVC sewer piping in accordance to requirements of Section 3.2.6 of the SSSW for 7.5% deflection of the base inside diameter. The deflection of the sewer pipe shall not exceed 7.5 percent when tested with a mandrel specifically designed for the type and size of pipe installed. Any section of the completed sewer failing to pass the test shall be repaired and retested.

**C.5 Inspection**
Televise sanitary sewer post installation in accordance to section 7.1.2 of the SSSW for review and acceptance. All defects discovered during the post-installation television inspection shall be corrected and the sewer shall be re-televised. Provide MMSD with copies of the post-installation DVD examination and report of the sewer. These items will become the property of MMSD. Televising sanitary sewer is incidental to the sanitary sewer pipe bid item.

**D Measurement**
The department will measure Steel Casing Pipe w/ 15-Inch Sanitary Sewer Carrier by the linear foot of pipe in place measured along the top centerline of the casing, acceptably complete. The pipe will be measured horizontally to the nearest foot, from center-to-center of manholes, to the end of the new pipe, or to the outside face of structures, whichever is applicable.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.5104 | Steel Casing w/ 15-Inch Sanitary Sewer Carrier | LF |

Payment is full compensation for furnishing and installing all labor, equipment, tools, materials and incidentals including sheeting, shoring, bracing, dewatering, boring and receiving pit excavations; casing pipe, spacers, carrier pipe, end seals, gaskets, lubricant; furnishing and installing all testing equipment and materials, leakage testing, deflection testing, televising; by-pass pumping, protecting and repairing damage to existing utilities, backfilling, mechanical compaction, and compaction testing; removing shoring, removing sheeting, removing bracing, disposal of all surplus or waste material. The cutting and removal of existing sanitary sewer pipe and manholes from within the trench of replacement sanitary sewer will not be paid for separately, but shall be considered incidental to the item.

## 353. Pipe Underdrain Exploration, Item SPV.0090.8025; Storm Sewer Lateral Exploration, Item SPV.0090.8026.

**A General**
This special provision describes performing the exploratory trenching in sufficient advance of the grading and storm sewer construction operations to allow uninterrupted progress of these operations.

**B (Vacant)**

**C Construction**
Construct the trench a minimum 12 inches wide and deep enough to intercept all existing pipes (underdrain pipes and storm sewer laterals). Do not backfill trench until approved by the engineer. Backfill with suitable fill material conforming to standard spec 209.

**D Measurement**
The department will measure Pipe Underdrain Exploration and Storm Sewer Lateral Exploration by the linear foot, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.8025 | Pipe Underdrain Exploration | LF |
| SPV.0090.8026 | Storm Sewer Lateral Exploration | LF |

Payment is full compensation for furnishing all excavating, for placing and compacting backfill material, for restoring the work site.

## 354. Drain Slotted Vane Longitudinal, Item SPV.0090.8030; Temporary, Item SPV.0090.8035.

**A Description**
This special provision describes furnishing and installing Drain Slotted Vane Longitudinal and Drain Slotted Vane Longitudinal Temporary as shown on the plans, in accordance to standard specs 501, 505, 607, and 611, and as hereinafter provided.

**B Materials**
Construct the pipe that the vane drain casting rests in using 15-inch diameter SDR-35 poly vinyl chloride, (PVC) sewer pipe for permanent drains

Conform to standard spec 611 for all other materials.

Conform to standard spec 415.2.1 for encasing material around the pipe.

Furnish steel reinforcement conforming to standard spec 415.2.2

Furnish concrete curing compounds conforming to standard spec 415.2.4.

**C Construction**
Prior to encasing the pipe in concrete, cover the upper end of the slotted drain as shown on the plans. Otherwise, obtain engineer approval prior to any variations.

Prior to construction operations adjacent to the slotted area of the slotted vane drain pipe, cover the slots on the top of the drain.

Remove Drain Slotted Vane Longitudinal Temporary prior to constructing the roadway to its final condition. Repair opening in drainage structure at connection to Drain Slotted Vane Longitudinal Temporary. Ensure engineer approval of submitted method of repair. Do not damage the slotted vane drainpipe.

**D Measurement**
The department will measure Drain Slotted Vane Longitudinal and Drain Slotted Vane Longitudinal Temporary by the linear foot, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.8030 | Drain Slotted Vane Longitudinal | LF |
| SPV.0090.8035 | Drain Slotted Vane Longitudinal Temporary | LF |

Payment is full compensation for furnishing all materials, including PVC pipe and end cap, slotted vane drain castings, concrete masonry and reinforcement; adjusting bricks; hauling and placing the pipe; making connections to existing inlets; sawing; encasement material around the pipe; concrete curing compound; tie bars and dowel bars cleaning out and restoring site of work; removing and disposing of all materials for Drain Slotted Vane Longitudinal Temporary, and for repairing opening of drainage structure.

Remove any material entering the pipe at own expense. If any section of pipe is damaged or is unsatisfactory as determined by the engineer, replace the drainpipe at own expense.

## 355. Lining 96-Inch Reinforced Concrete Storm Sewer Pipe, Item SPV.0090.8090.

**A Description**
This section describes lining the existing 96-inch reinforced concrete storm sewer pipe. Provide a liner material of sufficient strength to withstand roadway embankment heights of up to 35-feet of Mechanically Stabilized Earth (MSE) on top of existing ground and current AASHTO highway maximum dead and live loads.

**B Materials**
Contractor has the option to line the pipe with:

a) A cold-formed two-flange steel tunnel liner plates, fabricated to permit in-place assembly of a continuous circular steel support system. Additional requirements include the placement of grout in any void spaces between the tunnel liner plates and the placement of a paved concrete insert.

**Or**

b) A high-strength, high build, fiber reinforced, geopolymer liner material using a remotely operated spinning applicator, mechanical pumping, or spraying.

**B.1 Roughness and Final inside Pipe Diameter**
Provide paved liner material not exceeding the manning's coefficient of roughness of 0.013. The final inside pipe diameter measured after concrete paved insert or liner must be a minimum of 90-inches.

## B.2 Tunnel Liner Plate with Paved Insert

### B.2.1 Material

Fabricate the liner plate from structural quality, hot-rolled carbon steel sheets or plates conforming to ASTM Specifications A569. Accurately curve the plates to suit the pipe cross-section and must be of uniform fabrication to allow plates of similar curvature to be interchanged. Punch all plates for bolting on both the longitudinal and circumferential seams and fabricate as to permit complete erection from the inside of the pipe. Provide plates with 18 inches of width and lengths after overlap of 37 ¾ inches, 44 inches, or 50 ¼ inches. Circumferential hole spacing will be a multiple of the plate length to allow staggering of the longitudinal seam. Provide circumferential bolt spacing of 6 ¼ inch.

### B.2.2 Paved Insert

Provide paved inverts along the entire inside pipe circumference consisting of portland cement concrete.

### B.2.3 Design

Design the liner plate in accordance to ASSHTO design meeting current highway live loads and maximum dead load on the structure with a factor of safety of stiffness of 3.0, buckling of 2.0, and seam strength of 2.0. Provide liner plates to support roadway embankment up to 35 feet in height behind an MSE wall.

### B.2.4 Submittals

1. Provide shop drawings with structural calculations, verified and stamped by a professional engineer registered in the State of Wisconsin. Submit one electronic copy of shop drawings in portable document format for engineer's review two weeks prior to start of work. The contractor is responsible for all errors of detailing and fabrication. The omission from the shop drawings of any connection will not relieve contractor of the responsibility of furnishing and installing such materials, even though the shop drawings may have been and reviewed and accepted by the engineer.

2. Provide a crawler mounted video camera with laser profiler, rotating laser or laser ring capable of measuring and recording the identification, location, and description of the pipe condition with all equipment necessary to perform the inspections.

3. Provide pre and post inspection report including pipeline video and details of the laser ring profiler equipment and reports.

### B.2.5 Metallic Coating

Fabricate the Liner Plate from steel coils that have been hot-dip coated in a bath of commercially pure aluminum with less than 0.35% silicon meeting AASHTO M 274.

**B.2.6 Bolts and Nuts**
Provide bolts and nuts of proper diameter and length as recommended by the manufacturer. Conform to ASTM B695, Class 50 for galvanized bolts and nuts as required with galvanized liner plate.

**B.3 Geopolymer Liner**
**B.3.1 Material**
Provide factory blended cementitious, geopolymer material.

Furnish materials for patching and filling voids conforming to Hydraulic Cement ASTM C 1157.

Geopolymer based structural liner properties

| Property | Test Method | Duration | Requirement |
|---|---|---|---|
| Compressive Strength | ASTM C109 | 1 Day<br>28 Days | Min. 2,500 psi<br>Min. 8,000 psi |
| Flexural Strength | ASTM C293 | 7 Days<br>28 Days | Min. 900 psi<br>Min. 1300 psi |
| Modulus of Elasticity | ASTM C469 | 28 Days | Min. 3,480,000 psi |
| Tensile Strength | ASTM C496 | -- | Min. 800 psi |
| Bond Strength | ASTM C882 | 28 Days | Min. 2,800 psi |

Acceptable products Geospray, Dynastone, Ecocast, Geocrete or approved equal.

**B.3.2 Design**
Provide geopolymer liner to support the roadway embankment up to 35 feet on top of existing ground and AASHTO design meeting current highway live loads and maximum dead load on the structure and provide a minimum 50 year service life for durability.

**B.3.3 Submittals**
1. Submit a written installation plan for lining the 96-inch reinforced concrete pipe at least ten days before beginning the work. Include the following:
    a) Provide shop drawings with structural calculations, verified and stamped by a professional engineer registered in the State of Wisconsin. Design the structural line to support the roadway embankment up to 35 feet of additional fill and AASHTO design meeting current highway live loads and maximum dead load on the structure and provide a minimum 50 year service life for durability. Ensure the calculations address the spray liner physical properties and lining thickness. Do not begin work until the submittals have been accepted by the engineer. Submit one electronic copy of shop drawings in portable document format for engineer's review two weeks prior to start of work. The contractor is responsible for all errors of detailing and fabrication. The omission from the shop drawings of any connection will not relieve contractor of the responsibility of furnishing and installing such materials,

even though the shop drawings may have been and reviewed and accepted by the engineer.

b) Notarized statement from the manufacturer, that the materials and procedures meet the specified requirements, along with submitting the manufacturer's current product technical data sheets, mix design, ASTM references, material safety data sheets and installation instructions.
c) Methods of cleaning the host pipe.
d) Plan to bypass flow around the host pipe for the duration of the liner installation and until the liner process is complete.
e) Method to verify applied thickness during installation.
f) Certification from the manufacturer that the contractor is an approved installed of the specified products.

2. During construction, submit the following information to the engineer:
    a) Test results performed that demonstrate the liner material meets the material requirements. Perform the tests on specimens prepared at the project site.
    b) Daily thickness measurements of the spray material.
3. Provide a crawler mounted video camera with laser profiler, rotating laser or laser ring capable of measuring and recording the identification, location, and description of the pipe condition with all equipment necessary to perform the inspections.
4. Pre and post inspection report including pipeline video and details of the laser ring profiler equipment and reports.

## C Construction

### C.1 Existing Pipe Preparation

Remove all debris and obstructions from the host pipe. Dewater, clean, and prepare the host pipe according to the manufacturer's recommendations. Determine location of and remove obstructions that may prevent proper installation. Provide strutting and bracing as required to ensure stability of the pipe.

### C.2 Flow Bypassing

Contractor is expected to encounter water, provide and maintain pumps of sufficient capacity to handle the flow.

Prevent the accumulation and flow of water through the host pipe and liner until after the work is complete. Where required, bypass flows around the host pipe in accordance to the requirements of the special provisions of the contract. After the lining process begins, maintain the bypass flow until the lining process is complete.

### C.3. Pre and Post Installation Inspection

After cleaning and before beginning the lining process, inspect the host pipe to ensure that there are no obstructions that would hinder the lining process. Note the locations of all lateral connections to the host pipe for reestablishment during lining operations.

Perform a pre-installation video survey of the host pipe and provide a copy of the video the engineer.

Perform a post-installation video survey of the pipe and provide a copy of the video to the engineer.

Provide a crawler mounted video camera with laser profiler, rotating laser or laser ring capable of measuring and recording the identification, location, and description of the pipe condition with all equipment necessary to perform the inspections. Provide pre and post inspection report including pipeline video and details of the laser ring profiler equipment and reports.

**C.4. Transition to Match Existing Inside Pipe Diameter**
Provide a 10 feet smooth transition to match the existing 96-inch pipe diameter invert where the liner construction ends within the pipe.

**C.5 Tunnel Liner Plate with Paved Insert**
**C.5.1 Liner Plate Installation**
Bolt the plates together in place, taking individual pieces through access location chosen the contractor. Grout the void between the reline and host pipe after the pipe has been assembled in-place.

**C.5.2 Grouting**
Provide grouting equipment capable of placing grout at all locations as recommended by the manufacturer.

Conduct back grouting to fill any voids after rings have been installed in a manner to prevent buckling or shifting of the liner ring. Back grouting can be done either by gravity flowing grout in the void space or back grouting inside the structure at low pressure (less than 5 psi) through grout holes with a 2 inch welded threaded coupling and plug at various positions staggered throughout the structure. Provide two inch diameter grout holes to permit grouting as the assembly of the liner plate is completed. Pump the grout in a manner that the grout does not dilute or separate and all voids between the liner structure and existing storm sewer pipe are completely filled.

Schedule the grouting crews as soon as practical behind the assembly operation. Stage grouting in proper lifts is important to prevent over deflection. To prevent flotation or racking of the structure, design and place each lift properly. It is the responsibility of the grouting contractor to prevent flotation of the pipe or racking of the arch structure during the back-grouting process. Contact manufacturer for methods of grouting and installation.

Each lift will be a maximum of 2 feet high on each side of the structure and set before the next grout lift is added.

The requirement of the work are such that the entire portion of the cells which surround the pipe inserts must be completely filled with grout for the full length of the new insert. Propose a mix design for back grouting.

**C.5.3 Concrete Paved Invert**
Provide paved inverts along the entire inside pipe circumference consisting of portland cement concrete placed at a depth of no less than 1.5 inches.

Remove any loose material with a wire brush and remove all foreign material on the surface to be paved. Remove all free standing water immediately before placing the concrete.

Provide welded, steel wire mesh having dimension no more than 6" x 6" and be of a wire gage no lighter than No. 10 (0.100"). Place the reinforcing mesh on the crests of the corrugations. The mesh can be attached to the crest of the corrugations by either welding or wire tied to the existing bolts at least on 2 inches on centers with a minimum overlap of 6 inches. Extend the mesh at least 4" from the edge of the paved invert.

Conform to thin walled structures with a maximum aggregate size limited to that passing the ¾ inch screen for the concrete mix. Provide the mix with a low water content to enable placement of the sloping sides of the structure. Tamp the concrete sufficiently to eliminate large voids. Conform to contour of the pipe for a smooth "Float" finish concrete.

Do not allow any water to flow over the paved invert for at least 12 hours after paving. Divert heavy flow for up to 48 hours after paving.

**C.5.4 Pre-construction Meeting**
Arrange a pre-construction meeting with the Tunnel Liner Plate manufacturer and grouting contractor prior to pipe installation. It is required to have a representative from the manufacturer during the entire assembly and installation of the tunnel liner plate.

**C.5.5 Damaged Pipe and Repair**
Repair all damage to existing pipe during construction. Repair any damage to newly installed liner caused during construction to the manufacturer's recommendation and to the satisfaction of the engineer.

**C.6 Geopolymer Liner**
Install liner by centrifugal spin casting application of mortar in a monolithic application throughout the pipe. The equipment must produce a liner that is densely compacted, of specified thickness, and thoroughly covers and adheres to the interior of storm sewer pipe.

Follow the manufacturer's installation instructions throughout the installation process and install components in accordance to manufacturer's specifications. Maintain strict adherence to manufacturer's application requirements.

1. The wall thickness design must be based upon the compressive strength and bending strength of the liner material. The minimum liner thickness must be 1.5 inches. The required thickness will be based on the pipes overall condition and design loading. The calculated minimum finished thickness of the liner must be based on a maximum possible crack width of 0.0625 inches with a factor of safety 2.0
2. Control the temperature and humidity in the host pipe according to the manufacturer's recommendation. Measure and record the temperature and humidity.
3. Patch holes and gaps in the host pipe with an approved hydraulic cement or the same cementitious or geoploymer based material to be used for the liner to provide a solid continuous surface on which to spray. Stop water infiltration into the host pipe by dry hydraulic cement, filling holes with polyurethane foam, or other methods approved by the engineer.
4. Prepare lateral connections to the host pipe according to manufacturer's recommendation.
5. Protect walls, surfaces, streambed and plants at the entrance and exit of the host pipe from overspray. Apply the material to the prepared surface using methods that provide a uniform surface. Use only equipment recommended by the manufacturer to perform the spray lining.
6. Record the batch or lot number from the containers used each day.
7. Verify the applied thickness at various, random perimeter locations at least once every 10 feet to the satisfaction of the engineer. Apply additional material to any areas found to be less than the design thickness.
8. For cementitious or geopolymer based material, prepare at least two test specimens as required per ASTM C109 utilizing ACI certified level one sample technicians to properly obtain and transport the test specimens to an accredited third party laboratory.
9. Ensure the liner is continuous over the entire length of the host pipe and free from defects such as foreign inclusions, holes and cracks no larger than 0.01 inches wide. Ensure the renewed conduit is impervious to infiltration and exfiltration.
10. Contain, collect, characterize and legally dispose of all waste generated during the work per the state and federal regulations.
11. After Installation repair all defects in the liner as directed by the engineer. Perform all repairs at no expense to the department.

**D Measurement**

The department will measure Lining 96-inch Reinforced Concrete Storm Sewer Pipe by the linear foot acceptably completed. Longer lining beyond the limits of the plan dimensions will not be measured for payment unless authorized and agreed to in advance of placement by the department.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0090.8090 | Lining 96-Inch Reinforced Concrete Storm Sewer Pipe | LF |

Payment for Lining 96-inch Reinforced Concrete Storm Sewer Pipe using Tunnel Liner Plate with Paved insert is full compensation for completing the work, including, but not limited to, excavation and backfilling; obstruction removal, debris removal, repair of damaged pipe areas, invert mortar placement; providing a cold-formed two-flange steel tunnel liner plates; fabricated to permit in-place assembly of a continuous support system; controlling water by pumping 12 hours prior start of work, during construction, and up to 48 hours after placement of paved invert; grouts, grout mix design; concrete for paved inverts including mix design; dewatering; submitting shop drawings; confined space entry equipment and working in confined space requirements; cleaning existing pipe; maintaining stability of existing pipe; transitions to match pipe invert; arranging and attending for pre-construction meeting; all incurred cost for a representative from the manufacturer as required during construction; repairing of all damages caused during construction to existing pipe; repairing of newly installed paved liner caused during construction; restoring access locations; reestablishment of all lateral connections; pre and post inspection videos, laser ring profile and reports; all materials, labors, equipment's, tools, handling, transporting, disposing spoils, equipment mobilization/demobilization, and all other necessary incidental items necessary to complete the work.

Payment for Lining 96-inch Reinforced Concrete Storm Sewer Pipe using Geopolymer is full compensation for completing the work, excavation and backfilling; including, but not limited to obstruction removal, debris removal, repair of damaged pipe areas, invert mortar placement; providing and applying geopolymer, dewatering, control of water by pumping as required; submitting shop drawings; confined space entry equipment and working in confined space requirements; cleaning existing pipe; maintaining stability of existing pipe; transitions to match pipe invert; repairing of all damages caused during construction to existing pipe; repairing of newly installed paved liner caused during construction; restoring access locations; reestablishment of all lateral connections; pre and post inspection videos, laser ring profile and reports; test results; all materials, labors, equipment, tools, handling, transporting, disposing spoils, equipment mobilization/demobilization, and all other necessary incidental items necessary to complete the work.

## 356. Survey Project 1060-33-81, Item SPV.0105.0001; Survey Project 1060-43-81, Item SPV.0105.0002; Survey Project 1060-34-82, Item SPV.0105.0007.

### A Description

Perform work conforming to standard spec 105.6 and 650. This special provision describes modifying standard specs 105.6 and 650 and as follows to define the requirements for construction staking for this contract.

*Replace standard spec 105.6.2 with the following:*

The department will not perform any construction staking for this contract. Obtain engineer's approval prior to performing all survey required to lay out and construct the work under this contract.

The survey includes establishing horizontal and vertical position for all aspects of construction including but not limited to storm sewer, subgrade, base, curb, gutter, curb and gutter, pipe culverts, drainage structures, structure layout, bridges, noise barriers, all retaining wall layout, pavement, pavement markings (temporary and permanent), barriers (temporary and permanent), overhead signs, freeway and local street lighting, electrical installations, supplemental control, slope stakes, ponds, traffic signals, ITS, FTMS, parking lots, paths, utilities, conduit, water main, sanitary sewer, booster stations, landscaping elements, irrigation system layout, installation of community sensitive design elements, traffic control items, fencing, etc.

The department may choose to perform quality assurance surveys during the project. These quality assurance surveys do not relieve the responsibility for performing all survey work required to lay out and construct the work under this contract.

*Delete standard spec 650.1.*

**B (Vacant)**

**C Construction**

*Replace standard specs 650.3.1 (5) and 650.3.1 (6) with the following:*

Perform survey work using global positioning or conventional methods. Establish additional benchmarks and control points as necessary to support the method of operation, or as the engineer directs. Do not use global positioning methods to establish the following:

1. Structure layout horizontal or vertical locations.
2. Concrete pavement vertical locations.
3. Curb, gutter, and curb and gutter vertical locations.
4. Concrete barrier vertical locations.
5. Storm Sewer layout horizontal or vertical locations, including but not limited to structure centers, offsets, access openings, rim and invert elevations.
6. Sanitary sewer construction or other gravity –based drainage system, including but not limited to structure centers, offsets, access openings, rim and invert elevations.

Maintain neat, orderly, and complete survey notes, drawings, and computations used in establishing the lines and grades. This includes, but is not limited to:

1. Raw data files
2. Digital stakeout reports
3. Control check reports

4. Supplemental control files (along with method used to establish coordinates and elevation)
5. Calibration report

Make the survey notes and computations available to the engineer within 24 hours as the work progresses unless a longer period is approved by the engineer.

*Replace standard spec 650.3.3.1 with the following:*

Under the Survey Project bid item, global positioning system (GPS) machine guidance for conventional subgrade staking on all or part of the work may be substituted. The engineer may require reverting to conventional subgrade staking methods for all or part of the work at any point during construction if, in the engineer's opinion, the GPS machine guidance is producing unacceptable results.

*Replace standard spec 650.3.3.3.4.1 with the following:*

The department will provide the contractor staking packet as described in the Construction and Materials Manual (CMM) 7.10. At any time after the contract is awarded, the available survey and design information may be requested. The department will provide that information within 5 business days of receiving the contractor's request. The department incurs no additional liability beyond that specified in standard spec105.6 or standard spec 650 by having provided this additional information.

*Supplement standard spec 650.3.3.3.6.2 with the following:*

Record all subgrade elevation checks and submit a hard copy to the engineer within 24 hours or as requested by the engineer.

*Supplement standard spec 650.3 with the following:*

**650.3.14 Water Main**
Record all elevation data for the casing, grade breaks, water main pipe, bends, fittings, and all information necessary to accurately record the construction document. Submit a hard copy to the engineer within 24 hours or as requested by the engineer.

Set and maintain construction stakes or marks as necessary to achieve the required accuracy and to support the method of operations. Locate all pipe, valves and bends to within 0.10 feet horizontal and establish the elevations to within 0.10 feet vertically.

Set construction stakes at all water main valves, fittings and bends and at maximum interval of 50 feet for water main piping.

Provide the as-built xyz coordinates and elevations, in the project horizontal and vertical datum, of all bends, fittings, valves and tie in locations for the as-built plan. Also provide the

locations of the casing ends, the elevation of the top of casing and the size and material of all pipes.

**650.3.15 Sanitary Sewer**
Record all elevation data for pipe inverts, outside drops, bends, fittings, casings and other information necessary to accurately record the construction document. Submit a hard copy to the engineer within 24 hours or as requested by the engineer.

Set and maintain construction stakes or marks as necessary to achieve the required accuracy and to support the method of operations. Locate all pipe inverts, drops to within 0.02 feet horizontally and to within 0.01 feet vertically.

Provide the as-built xyz coordinates and elevations, in the project horizontal and vertical datum, of all tie in locations for the as-built plan. Also provide the locations of the casing ends, the elevation of the top of casing and the size and material of all pipes.

**D Measurement**
*Replace standard spec 650.4 with the following:*

The department will measure Survey Project 1060-33-81, Survey Project 1060-43-81 and Survey Project 1060-34-82 as a separate single lump sum unit of work, acceptably completed.

**E Payment**
*Replace standard spec 650.5 with the following:*

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.0001 | Survey Project 1060-33-81 | LS |
| SPV.0105.0002 | Survey Project 1060-43-81 | LS |
| SPV.0105.0007 | Survey Project 1060-34-82 | LS |

Payment is full compensation for performing all survey work required to lay out and construct all work under this contract. The department will not make final payment for any staking item until the contractor submits all survey notes and computations used to establish the required lines and grades to the engineer within 24 hours of completing this work. The department will deduct from payments due the contractor for the additional costs specified in 105.6. No additional payments will be made for restaking due to construction disturbance and knock-outs.
SEF Rev. 14_0909

## 357. Concrete Pavement Joint Layout, Item SPV.0105.0003.

**A Description**
This special provision describes providing a concrete pavement or concrete base joint layout design for intersections and marking the location of all joints in the field.

**B (Vacant)**

**C Construction**
Plan and locate all points necessary to establish the horizontal position of the transverse and longitudinal joints in the concrete to prevent uncontrolled cracking. Submit a joint layout design to the engineer before paving each intersection. Mark the location of all concrete joints in the field. Follow the plan details for joints in concrete making adjustments as required to fit field conditions.

**D Measurement**
The department will measure Concrete Pavement Joint Layout as a single lump sum unit of work for all joint layout designs and marking, acceptably completed under the contract.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.0003 | Concrete Pavement Joint Layout | LS |

Payment is full compensation for providing the intersection joint layout designs and marking all joints in the field.

The department will adjust pay for crack repairs as specified in standard spec 415.5.3.

## 358. Removing Adler Utility Tunnel, Item SPV.0105.0010.

**A Description**
This special provision describes partially removing the existing Adler Utility Tunnel to the limits as shown on the plans and backfilling with granular backfill in accordance to the applicable provisions of standard specifications 204 and 209 and as hereinafter provided.

The existing tunnel is a concrete double box culvert with each cell being 8’ x 8’. The existing culvert top and walls are 10” reinforced concrete. The westerly cell is filled with flowable fill and the easterly cell is filled with Concrete Low Strength Material not exceeding 120psi. There is an energized We Energies concrete encased (3000 psi) electric duct package in and under portions of the existing tunnel.

**B Materials**
**B.1 Granular Backfill**
Provide granular backfill meeting the requirements of standard spec 209.

**C Construction**
**C.1 General**
Perform removals per standard spec 204 an as hereinafter specified.

**C.2.Pre-Removal Meeting**
Schedule and conduct a structure pre-removal meeting at a time agreed to by the engineer and We Energies a minimum of 10 working days prior to removing any portions of the Adler Utility Tunnel. Contact Erich Wuestenhagen, (414) 651-3948, of We Energies a minimum of 10 working days prior to scheduling the meeting.

At the pre-removal meeting, present and discuss the details of the Adler Utility Tunnel removal operations including, schedule, staging, equipment, methodology of removal. Provide precautions and other measures that will be implemented to protect those portions of the tunnel designated to remain.

Obtain concurrence and acceptance of the proposed removal operations from the engineer and We Energies representatives prior to beginning removal of the Adler Utility Tunnel.

**C.2 Removal**
In areas of conflict between proposed road subgrade and existing Adler Utility Tunnel, remove portions of the tunnel to a depth of 1-feet below future pavement subgrade elevation, storm sewer installation, and wall construction except where shown in the plan. Do not remove any portions of the tunnel floor. Do not use any equipment, devices or methods that might damage the concrete encased electric duct package or portions of the tunnel designated to remain.

We Energies will observe all removal operations. Schedule and coordinate all Adler tunnel removal work with Erich Wuestenhagen (414-651-3948) of We Energies a minimum of 10 working days prior to removing portions of the Adler Utility Tunnel.

**C.3 Place Granular Backfill**
After removing the upper portions of the Adler Utility Tunnel to the limits shown on the plan as shown in the plans, backfill removed portions of the tunnel with granular backfill to the limits shown on the plans. Place granular backfill in accordance to standard spec 206.3.13.

**D Measurement**
The department will measure Removing Adler Utility Tunnel as a lump sum unit of work, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.0010 | Removing Adler Utility Tunnel | LS |

Payment for Removing Adler Utility Tunnel is full compensation for conducting pre-removal meeting, coordination with We Energies; removing tunnel, protecting portions of the tunnel designated to remain, repairing all damage including associated engineering

costs, for hauling and disposing of all materials; and for providing, placing and compacting granular backfill material.

## 359. Moving Sign Bridge Cantilevered S-40-128, Item SPV.0105.0400.

**A Description**
This special provision describes relocating existing sign bridge cantilevered S-40-128 as shown on the plans and removing concrete base foundation and disposing of resulting materials in accordance to standard spec 203 and as hereinafter provided.

**B (Vacant)**

**C Construction**
Perform work in accordance to standard spec 641.3. Existing concrete bases, including anchor bolts, reinforcing steel, and conduit shall be removed to a minimum depth of 4 feet below the adjacent finished grade. Removed portions of the concrete foundations shall be disposed of outside the highway right-of-way in accordance to standard spec 204.

**D Measurement**
The department will measure Moving Sign Bridge Cantilevered S-40-128 as a single lump sum unit of work, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.0400 | Moving Sign Bridge Cantilevered S-40-128 | LS |

Payment is full compensation for transporting and erecting the sign bridge, including signs, lighting and catwalk; removing existing concrete bases; for providing anchor bolts, but not including concrete supports paid for separately.

## 360. Maintenance of Lighting Systems, Item SPV.0105.1006.

**A Description**
Maintain existing and proposed lighting system beginning on the date that the contractor's activities (electrical or otherwise) at the job site begin. Take responsibility for the proper operation and maintenance of all existing and proposed lighting systems which are part of, or which may be affected by, the work until final acceptance or as otherwise determined by the engineer.

Before performing any excavation, removal, or installation work (electrical or otherwise) at the site, initiate a request for a maintenance transfer and preconstruction inspection, as specified elsewhere herein, to be held in the presence of the engineer and a representative of the party or parties responsible for maintenance of any lighting systems which may be affected by the work. Make the request for the maintenance preconstruction inspection no less than seven calendar days prior to the desired inspection date.

Existing lighting systems, when depicted on the plans, are intended only to indicate the general equipment installation of the systems involved and shall not be construed as an exact representation of the field conditions. Visit the site to confirm and ascertain the exact condition of the electrical equipment and systems to be maintained.

Maintenance of the lighting system includes but not limited to lighting control cabinets: HL-40-UN, HL-40-LE, HL-40-MW, HL-40-ZW, HL-40-ZZ, HL-40-ZE, HL-40-TA, HL-40-ZN. HL-40-WB and HL-40-AD

The following lighting control cabinets will be utilized for temporary lighting and then are to be removed when the temporary lighting is removed: HL-40-LE, HL-40-ZW

The following lighting control cabinets are new and will be used for both temporary and final lighting: HL-40-GD, HL-49-ZB

New Lighting Control Cabinet HL-40-ZD will be used exclusively for lighting of tunnel B-40-858. Lighting Control Cabinet HL-40-ZC will be used mainly for tunnel lighting of tunnel B-40-850 but will also be used for final freeway lighting.

**B (Vacant)**

**C Construction**

**C.1 Existing Lighting Systems**

Existing lighting systems are defined as any lighting system or part of a lighting system in service prior to this contract. The contract drawings indicate the general extent of any existing lighting. Ascertain the extent of effort required for compliance with these specifications; failure to do so will not be justification for extra payment or reduced responsibilities. Clear and replace any knockdowns or damage caused to the existing lighting system, regardless of who causes the damage. Maintain existing lighting system as follows:

**Partial Maintenance:** Only maintain the affected circuits if the number of circuits affected by the contract is equal to or less than 40% of the total number of circuits in a given controller and the controller is not part of the contract work unless otherwise indicated. Ensure engineer approval to isolate the affected circuits by means of in-line waterproof fuse holders as specified elsewhere.

**Full Maintenance:** Maintain the entire controller and all associated circuits if the number of circuits affected by the contract is greater than 40% of the total number of circuits in a given controller, or if the controller is modified in any way under the contract work.

**C.2 Proposed Lighting Systems**

Proposed lighting systems are any temporary or final lighting systems or part of a lighting system to be constructed under this contract.

Maintain all items installed under this contract, including, but not be limited to, any equipment failures or malfunctions as well as equipment damage either by the motoring public, contractor operations, or other means.

Excluding damage due to contractor operations, the contractor will be reimbursed for replaced equipment, materials only, if the invoice paid for the individual piece of equipment is greater than $500. The cost of maintaining equipment installed under this contract, labor, mobilization, tools and incidentals along with repairs due to contractor operations are incidental to this bid item.

**C.3 Maintenance Operations**

Maintain lighting units (including sign lighting), cable runs, and lighting controls. In the case of a pole knockdown or sign light damage caused by normal vehicular traffic, promptly clear the lighting unit and circuit discontinuity and restore the system to service. Reinstall the lighting unit (if salvageable), or install a new one.

Provide weekly night-time patrol of the lighting system, with patrol reports filed immediately with the engineer and copied to the region lighting coordinator with deficiencies corrected within 24 hours of the patrol. Present patrol reports on standard forms as designated by the engineer. Uncorrected deficiencies may be designated by the engineer as necessitating emergency repairs as described elsewhere herein.

Perform corrective action on specific lighting system equipment according to the following chart. The chart lists the maximum response, service restoration, and permanent repair time.

| Incident or Problem | Service Response Time | Service Restoration Time | Permanent Repair Time |
|---|---|---|---|
| Control cabinet out | 1 hour | 4 hours | 7 Calendar days |
| Hanging mast arm | 1 hour to clear | na | 7 Calendar days |
| Motorist caused damage or leaning light pole 10 degrees or more | 1 hour to clear | 4 hours | 7 Calendar days |
| Circuit out – Needs to reset breaker | 1 hour | 4 hours | na |
| Circuit out – Cable trouble | 1 hour | 24 hours | 21 Calendar days |
| Outage of 3 or more successive lights | 1 hour | 4 hours | na |
| Outage of 75% of lights on one tower | 1 hour | 4 hours | na |
| Outage of light nearest RR crossing approach, Islands and gores | 1 hour | 4 hours | na |
| Outage (single or multiple) found on night outage survey | na | na | 7 Calendar days |

**C.4 Lighting**

1. **Serve Response Time:** The amount of time from the initial notification to the contractor until a patrolman physically arrives at the location.
2. **Service Restoration Time**: The amount of time from the initial notification to the contractor until the time the system is fully operational again. (In cases of motorist-caused damage, the undamaged portions of the system are operational.)
3. **Permanent Repair Time**: The amount of time from initial notification to the contractor until the time permanent repairs are made if the contractor was required to make temporary repairs to meet the service restoration requirement.

Failure to provide this service will result in liquidated damages of $500 per day per occurrence. In addition, the department reserves the right to assign any work not completed within this timeframe to the State Electrical Engineering and Electronics Unit. Reimburse all costs associated to repair this uncompleted work. Failure to pay these costs to the State Electrical Engineering and Electronics Unit within one month after the incident will result in additional liquidated damages of $500 per month per occurrence. Unpaid bills will be deducted from the cost of the contract. Repeated failures or a gross failure of maintenance shall result in the State's Electrical Engineering and Electronics Unit being directed to correct all deficiencies and the resulting costs deducted from any monies owed the contractor.

**C.5 Operation of Lighting**

Maintain operational lighting every night, dusk to dawn. Do not operate duplicate lighting systems (such as temporary lighting and proposed new lighting) simultaneously. Do not keep lighting systems in operation during long daytime periods. Ensure that the lighting system is fully operational and approved by the engineer prior to submitting a pay request. Failure to do so will be grounds for denying the pay request.

**D Measurement**

The department will measure Maintenance of Lighting Systems as a single lump sum unit of work, per contract, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.1006 | Maintenance of Lighting Systems | LS |

Payment is full compensation for Maintenance of Lighting Systems, both existing and proposed, weekly night-time patrol of the lighting system, mobilization, and filed patrol reports. No payment will be considered for damage or repairs due to contractor operations.
SEF Rev. 14_1211

## 361. Lighting System Integrator, Item SPV.0105.1007.

### A Description

These special provisions describe coordinating lighting with various parties; record keeping, and documentation. Where the department is responsible for freeway lighting operation, maintenance, or utility locates on existing systems or systems overlapping project boundaries, the contractor's freeway lighting integrator will serve as the contractor's liaison to the department's electrical operations unit.

### B Personnel Qualifications

Assign personnel experienced in underground utility construction and department lighting specifications and practices.

### C Construction

At any one time during the project assign one individual person as the freeway lighting integrator.

The freeway lighting integrator shall:

- Familiarize himself/herself with the location and nature of existing lighting circuits. This familiarity shall include the extent of any lighting system that overlaps project limits.
- Maintain a file of applicable permits or licenses issued to the contractor, and convey copies to the engineer.
- Keep with him/her at all times a contact list of affected lighting personnel.

- Maintain a record of tagouts and the clearance of tagouts.
- Interface with department electrical personnel to determine how contract limits might affect maintenance or operation of existing systems.
- Maintain ongoing contact with the department's Diggers' Hotline Coordinator to ensure that each of the two persons knows that all requested utility locates are marked in the field by the appropriate party. The intent here is to assure coordination. This special provision does not transfer additional utility locating responsibilities to the contractor, beyond those responsibilities already assigned to him by other provisions of the contract.

- Inform the department of any lighting outages, including outside the project limits where a lighting system crosses the project boundary.
- Maintain in any format real-time records of existing, removed and new lighting facilities. Include utility service extensions. Additional required records will include temporary connections and their ultimate removal.
- Maintain records of tests, including: "meg" tests, amperage draw per circuit leg, voltage reading at the disconnect, and voltage reading at the furthest pole per circuit leg. Convey these records at time of acceptance or partial acceptance.
- At the time of acceptance or partial acceptance, convey as-built drawings in both the following formats: plan redlines and .dgn electronic. Include utility service extensions.

- Secure copies of operators' manuals, tear sheets, etc. as may be provided by manufacturers of some lighting materials, and convey a minimum of three sets to the department.
- Work with the engineer to notify department electrical personnel of acceptance or partial acceptance.
- Perform related duties as may be needed to ensure continuity of freeway lighting during construction, and orderly transfer upon completion.
- Contractor must use GPS to provide coordinates of each light pole and control cabinet. The data must be entered into a Microsoft Excel 2007 spreadsheet along with other required fields as specified by WisDOT.

**D Measurement**

The department will measure Lighting System Integrator as one complete lump sum unit of work, acceptably completed per each pay item.

**E Payment**

The department will pay for measured quantities at the contract lump sum price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.1007 | Lighting System Integrator | LS |

Payment is full compensation for personnel costs; and for furnishing all required coordination, record-keeping, and documentation.

## 362. Transporting and Installing State Furnished Adaptive Traffic Signal Equipment W. Wisconsin Avenue and N. 95th Street, Item SPV.0105.3001.

**A Description**

This special provision describes the transporting and installing of department furnished Adaptive Traffic Signal Cameras and mounting hardware.

**B Materials**

Pick up the department furnished Adaptive Traffic Signal Cameras, mounting hardware, and Ethernet repeaters at the department's Electrical Shop located at 935 South 60th Street, West Allis. Notify the department's Electrical field unit at (414) 266-1170 to make arrangements for picking up the department furnished materials at least five working days prior to material pick-up.

Furnish Cat-5e cable terminations per the manufacturer specifications.

**C Construction**

Notify the department's Electrical field unit at (414) 266-1170 at least five working days prior to the installation of the cameras.

Contact Justin Effinger at (262) 548-5676 to coordinate the locations of the cameras at least five working days prior to installation. Install the pole/arm mounting bracket, extension arm (if required) and cameras as shown on the plans (the final determination of location will be made by the department's electrical personnel to ensure best line of sight) per manufacturer recommendations.

Install the state furnished Ethernet repeater in a transformer base, pedestal base, or monotube handhole identified in the plans per the manufacturer's specifications.

The City of Milwaukee will install the required Cat-5e cable and camera power cable. Terminate the ends of the City of Milwaukee installed cables. Terminate the Ethernet cable ends in the cabinet and at the locations of any required Ethernet repeaters per the manufacturer's specifications. Each run of Ethernet cable must be terminated at both ends.

Submit an Ethernet Cable Test Procedure to the department 30 days prior to camera installation. The department will approve the test procedure within 30 days of the date received and provide a written approval.

Resubmit rejected test procedures within 15 days of notification. The department will provide written approval of resubmitted test procedures within 30 days of the date received.

Perform an Ethernet Cable Test conforming to the approved Ethernet Cable Test Procedure on each run of Ethernet cable (cabinet to camera, cabinet to Ethernet repeater, Ethernet repeater to camera). Test the Ethernet cable at a minimum for the following: 1000BASE-T, 100BASE-TX, 10BASE-T, Voice Over IP, Wiremap, Telco, and Length. Submit five copies of the test results to the department for approval. Notify the department of any cable that fails testing. If the Ethernet cable fails testing due to cable terminations, replace the terminations and re-test the cable. If the Ethernet cable fails testing due to the cable itself, the department will notify the City of Milwaukee of the failed Ethernet cable runs and the City of Milwaukee will be responsible for re-installing any failed Ethernet cable. Re-terminate the ends and re-test any Ethernet cable for any Ethernet cable re-installed by the City of Milwaukee.

Connect the Ethernet cables to the video detection cameras and Ethernet repeaters per the manufacturer's specifications once all cable has passed testing. Connect the camera power cable to the video detection cameras. Neatly coil and secure the Ethernet cable and camera power cable in the traffic signal cabinet for connection to the adaptable traffic signal cabinet equipment by others.

Assist the department and vendor with aiming and programming the cameras during the adaptable traffic signal turn-on. The department will schedule the adaptable traffic signal turn-on and provide notification a minimum of five working days prior to turn-on.

**D Measurement**
The department will measure Transporting and Installing State Furnished Adaptive Traffic Signal Equipment (location) as a single lump sum unit of work for each intersection, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.3001 | Transporting and Installing State Furnished Adaptive Traffic Signal Equipment W. Wisconsin Avenue and N. 95th Street | LS |

Payment is full compensation for transporting and installing the State Furnished Adaptive Traffic Signal System cameras, mounting hardware, and Ethernet repeaters; for furnishing and installing all connectors, including wire nuts, splice kits, tape, insulating varnish or sealant and ground lug fasteners; for terminating, testing, and connecting the Ethernet cables; for terminating and connecting the camera power cable; and for assisting the vendor and department with aiming and programming the cameras.

## 363. Install Fiber Optic Communications in Cabinet W. Wisconsin Avenue and N. 95th Street, Item SPV.0105.3002.

**A Description**
This special provision describes installing fiber optic communications equipment in traffic signal cabinets.

**B Materials**
The department will furnish pre-terminated fiber optic patch panels and managed Ethernet switches. The materials will be provided with the traffic signal cabinet. The patch panels will have pre-terminated fiber optic cable pigtails. Provide two each 1-meter lengths of ST-ST single mode fiber jumper (2 fibers per jumper) from the patch panel to the Ethernet switch. Provide a 1-meter length of CAT-5e cable from the Ethernet switch to the controller. Provide a 1-meter length of CAT-5e cable from the Ethernet switch to the Interface Panel. CAT-5e patch cords shall have factory pre-terminated RJ45 / 8P8C connectors on both ends per TIA/EIA T568B. Provide all patch panel, Ethernet switch, and Interface Panel attachment hardware.

Provide a 14 AWG XLP insulated, stranded, copper, 600 volt AC locate wire through the conduit run from the communication vault to the traffic signal cabinet. Connect the locate wire by using a silicone filled wire nut at each pull box, vault or other access point. Alternatively, use a single wire through the access points, leaving a 6 foot coil in each pull box, vault or other access point for splicing. All material under this item shall meet the requirements of standard spec 655.

**C Construction**

Install the patch panel and Ethernet switch on the side of the traffic signal cabinet opposite the electrical service at a location as approved by the engineer. With approval by the engineer, the Ethernet switch may be placed on a shelf near the patch panel. Install the pre-terminated fiber optic cable in conduit from the patch panel to the communication vault as specified in standard spec 678.3.1. Fiber optic cable ends shall be covered securely to protect open ends during installation in raceways. Leave the remainder of the fiber optic cable coiled in the communication vault.

Install the fiber jumpers and CAT-5e cable and provide a communications link from the communication vault to the controller. Install the CAT5-e cable from the Interface Panel to the Ethernet switch.

Connect the locate wire by using a wire nut at each access point. Alternatively, use a single wire through the access points.

**D Measurement**

The department will measure Install Fiber Optic Communications in Cabinet (Location) as a single lump sum unit of work in place, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item.

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.3002 | Install Fiber Optic Communications in Cabinet W. Wisconsin Avenue and N. 95th Street | LS |

Payment is full compensation for installing pre-terminated patch panels, Ethernet switches, and fiber optic cable in conduit; furnishing and installing attachment hardware, fiber jumpers, CAT-5e cable, and locate wire.

## 364. Transporting Signal and Lighting Materials W. Wisconsin Avenue and N. 95th Street, Item SPV.0105.3101.

**A Description**

This special provision describes the transporting of department furnished materials for traffic signals and intersection lighting.

**B Materials**

Transport materials furnished by the department including: monotube arms and luminaire arms (to be installed on monotube assemblies).

Pick up the department furnished materials at the department's Electrical Shop located at 935 South 60th Street, West Allis. Notify the department's Electrical Field Unit at (414) 266-1170 and make arrangements for picking up the department furnished materials at least five working days prior to picking the materials up.

**C (Vacant)**

**D Measurement**
The department will measure Transporting Signal and Lighting Materials as a single lump sum unit of work in place, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.3101 | Transporting Signal and Lighting Materials<br>W. Wisconsin Avenue and N. 95th Street | LS |

Payment is full compensation for transporting the monotube poles, monotube arms and luminaire arms (to be installed on monotubes). Installation of these materials is included under a separate pay item.

## 365. Trial Drilled Foundation Shaft 118.11-Inch, Item SPV.0105.4520.

**A Description**
The work included here in consists of installing a non-production, trial drilled foundation shaft to verify the proposed means and methods of drilled foundation shaft installation for construction of drilled foundation shafts shown in the plans.

Engineer acceptance of a successfully constructed trial drilled foundation shaft, including successful base grouting of the trial drilled foundation shaft, is required prior to beginning the installation of any other drilled foundation shafts for the contract.

**B Materials**
All materials for the trial drilled foundation shaft are to be as specified in the bid item Drilled Foundation Shaft 118.11-Inch.

All materials for base grouting the trial drilled foundation shaft are to be as specified in the SPV article Drilled Foundation Shaft Base Grouting.

**C Construction**
The trial drilled foundation shaft must be installed by the same contractor and work crews who will perform the production drilled foundation shaft installation work on the contract. Submit a Drilled Foundation Shaft Installation Plan at least 14 days prior to beginning work on the trial drilled foundation shaft per section C.1 of SPV article Drilled Foundation Shaft (diameter) included in the contract. Use the same equipment and installation procedures intended to be used for the production work on the contract and in accordance to the accepted Drilled Foundation Shaft Installation Plan.

The trail drilled foundation shaft is intended to be installed in the same or similar soil profile as the production drilled foundation shafts included in the contract. Construct the trial drilled foundation shaft within a 100-foot radius of Pier ES02 of B-40-854 or as approved by the engineer. The drilled foundation shaft bottom elevation must match the drilled foundation shaft bottom elevation shown in the plans for pier ES02 of B-40-854. The overall length of the shaft must be within +/- 5 feet of the drilled foundation shaft for ES02 of B-40-854.

The trial drilled foundation shaft shall consist of one 118.11-inch diameter drilled shaft as shown on the plans for pier ES02 of B-40-854. The trial drilled foundation shaft shall be reinforced the same as the production drilled foundation shaft for pier ES02 of B-40-854 including splices of the vertical reinforcement cage and the extension of reinforcement out the top of the foundation shaft. Include ten crosshole sonic logging (CSL) tubes and 11 Thermal Wires™ within the trial drilled foundation shaft as shown on the plans and as specified for SPV pay items Drilled Foundation Shaft 118.11-Inch and Thermal Integrity profiler (TIP) Testing, Drilled Foundation Shaft 118.11-Inch.

Construction of the trial drilled shaft shall be as specified under the SPV item Drilled Foundation Shaft 118.11-Inch and the accepted Drilled Foundation Shaft Installation Plan. Dispose of all soil excavation and excess materials removed for construction of the trial drilled foundation shaft in accordance to the requirements of the contract.

After installation of the trial drilled foundation shaft, perform thermal integrity profile testing in accordance to the SPV pay item Thermal Integrity Profiler (TIP) Testing, Drilled Foundation Shaft 118.11-Inch.

Base grout the trial drilled foundation shaft as shown on the plans and per the requirements of SPV Article Drilled Foundation Shaft Base Grouting included in the contract. The trial drilled foundation shaft must be base grouted by the same contractor and work crews who will perform the production drilled foundation shaft base grouting work on the contract. Use the same equipment and installation procedures intended to be used for the production base grouting work on the contract in accordance to SPV Article Drilled Foundation Shaft Base Grouting.

Acceptance of the trial drilled foundation shaft will be as specified for SPV pay item Drilled Foundation Shaft 118.11-Inch including non-destructive testing as specified for SPV pay item Drilled Foundation Shaft 118.11-Inch.

Acceptance of the drilled foundation shaft base grouting will be as specified for SPV article Drilled Foundation Shaft Base Grouting included in the contract. Submit base grouting reports per section C.6 of SPV article Drilled Foundation Shaft Base Grouting.

Upon acceptance by the engineer, cutoff the trial drilled foundation shaft and remove as necessary so as to be at least 2 feet below finished grade, or 4 feet below proposed top of pavement, and abandoned in place.

**D Measurement**
The department will measure Trial Drilled Foundation Shaft (diameter) as a single lump sum unit of work, acceptably completed.

Unsuccessful or rejected trial drilled foundation shaft installations, or trial drilled foundation shafts not meeting specifications, will not be measured for payment or be cause for additional compensation.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.4520 | Trial Drilled Foundation Shaft 118.11-Inch | LS |

Payment is full compensation for drilling and excavating the trial drilled foundation shaft; handling and properly disposing of excavated, augured and cored soils; placing the concrete for drilled foundation shaft to the required diameter and depth; furnishing and installing the reinforcing steel; furnishing and placing CSL tubes; accommodating CSL testing; meeting QMP drilled shafts special provision; removal; backfilling; and for site restoring.

Providing and installing Thermal Wires$^{TM}$ and performing thermal integrity profile testing will be measured and paid for separately under the SPV pay item Thermal Integrity Profiler (TIP) Testing included in the contract.

Providing equipment, materials and performing drilled foundation shaft base grouting will be measured and paid for separately under the SPV pay item Drilled Foundation Shaft Base Grouting,

If encountered, clearing unknown man made obstructions as defined in Section C.3.6.4 of SPV article Drilled Foundation Shaft (diameter) and SPV article Obstructions Drilled Foundation Shaft will be measured and paid for separately under the SPV pay item Obstructions Drilled Foundation Shaft.

## 366. Trial Secant Wall Panel 47.24-Inch, Item SPV.0105.4525.

**A Description**
The work consists of installing a trial (non-production) secant wall panel to verify the proposed means and methods of drilled shaft installation for construction of secant pile walls included in the contract.

The trial secant wall panel must be installed by the same contractor and work crews who will perform the production drilled shaft installation work on the contract. The same equipment and installation procedures intended to be used for the production work on the contract and in accordance to the accepted drill shaft installation plan must be followed for construction of the trial secant wall panel.

Engineer acceptance of a successfully constructed trial secant wall panel is necessary prior to beginning the installation of any other secant piles included in the contract.

**B Materials**

All materials for the trial panels are to be as specified for the bid items Wall Secant Pile 47.24-Inch.

**C Construction**

Construct the trial secant wall panel as specified under the item Wall Secant Pile 47.24-Inch and the accepted wall secant pile drilled shaft installation plan. The trial secant wall panel shall consist of three overlapping 47.24-inch diameter drilled shafts. Reinforce the shafts as shown in the construction plans for Structure R-40-516. Provide and install 4 crosshole sonic logging (CSL) tubes in at least one shaft of the trial secant wall panel. Drilled shafts within the trial secant wall panel shall extend to a depth that is equal to the maximum depth of production shafts required for Structure R-40-516.

Dispose all soil excavation and excess materials removed from drilled shaft excavations for construction of the trial secant wall panel in accordance to the requirements of the contract.

Excavate the trial secant wall panel and completely expose the entire face to a depth of 20-feet below the top of the trial secant wall panel. Provide safe access in accordance to OSHA regulations for the engineer to inspect the entire exposed face of the full-width trial secant wall panel for a period of at least three business days after the face of the trial secant wall panel is excavated and exposed. Provide shoring if necessary to accomplish this.

The trial secant wall panel will be subject to non-destructive testing as specified for the item Wall Secant Pile 47.24-Inch. Acceptance of the trial secant wall panel will be as specified for the item Wall Secant Pile 47.24-Inch. Upon acceptance by the engineer, remove the trial secant wall panel to at least elevation 763.30 or as otherwise directed by the engineer and backfill the trial secant wall panel. Backfill the excavation to meet minimum standard compaction requirements per the standard specifications. Any necessary sheeting, shoring, and removal of the trial secant wall panel shall be included in the cost of the trial wall panel.

**D Measurement**

The department will measure Trial Secant Wall Panel 47.24-Inch as a single lump sum unit of work consisting of three consecutive overlapping secant shafts, acceptably completed.

Unsuccessful or rejected trial wall panels installations, or trial secant wall panels not meeting specifications, will not be measured for payment or be cause for additional compensation.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.4525 | Trial Secant Wall Panel 47.24-Inch | LS |

Payment is full compensation for excavating and drilling the trial secant wall panel; handling and properly disposing of excavated material, providing and placing the concrete for secant pile drilled shafts to the diameter and depth required; providing and installing reinforcing steel; providing and placing CSL tubes; core sample; meeting QMP drilled shafts special provision; shoring; removal; backfilling and site restoration; and to meet these specifications including successful non-destructive testing.

## 367. Expansion Device Modular LRFD B-40-786, Item SPV.0105.4530; B-40-787, Item SPV.0105.4535; B-40-853, Item SPV.0105.4540; B-40-854, Item SPV.0105.4545; B-40-856, Item SPV.0105.4550.

**A Description**

This special provision describes designing, furnishing and installing a shop-fabricated waterproof modular expansion device in accordance to the current AASHTO LRFD Bridge Design and Construction Specifications, the applicable requirements of standard spec 502, the plans, and as hereinafter provided. The modular expansion joint device shall seal the deck surface, curbs, medians, and parapet walls as indicated on the plans. Any leaking or seeping of water through the joint will be cause for rejection of the modular expansion device.

**B Materials**

**B.1 General**

Furnish parts and elements that have material properties meeting the physical and chemical requirements shown in their manufacturer's technical data or as noted below, except as modified by pertinent parts of the standard specifications, this special provision, or the plans. Furnish certified test results from the manufacturer attesting to physical and chemical properties. Do not use any aluminum components or hardware.

**B.2 Modular Expansion Device System Components**

Furnish components for the Modular Expansion Device System from one of the following manufacturers and model series:

- D.S. Brown Company, Steelflex® Modular Expansion Joint Systems (D-Series) (419) 257-3561

- Watson, Bowman, & Acme Inc., Wabo® Modular System (STM-Series)
- (716) 691-7566

**B.3 Steel Plates, Bars, Shapes, and Sheets**

Furnish steel plates, bars, shapes, and extrusions that have been fabricated from high strength, low alloy grade 50 or grade 50W steel conforming to ASTM A709, or as shown on the approved shop drawings. Anchor bars and support bar boxes may be fabricated from ASTM A709 grade 36 steel. Furnish anchor bolts, bolts, nuts, and washers that conform to the requirements of ASTM A325. Secondary shapes or joint components may be assembled with bolts, nuts, and washers conforming to ASTM A490.

Furnish stainless steel sheets for the sliding surfaces of support bars that conform to the requirements of ASTM A167, alloy 304, 20 micro-inch RMS finish.

**B.4 Elastomeric Seal Elements**

Furnish preformed elastomeric seal elements that are polychloroprene (neoprene) of a rectangular or strip cross section having a minimum thickness of ¼-inch and conform to ASTM D3542 modified to omit the recovery test. The elastomeric seal elements shall meet the following physical properties:

| Property | Requirement | Test Method |
|---|---|---|
| Tensile Strength, min | 2000 psi | ASTM D412 |
| Elongation @ Break, min | 250% | ASTM D412 |
| Hardness, Type A, Durometer | 60± 5 pts | ASTM D2240 |
| Compression Set, 70 Hrs @ 212º F, max | 35% | ASTM D395, Method B, Modified |
| Ozone Resistance, after 70 hours at 100º F under 20% Strain with 100 pphm ozone | No Cracks | ASTM D1149 and D518, Method A |
| Mass Change in Oil 3 after 70 hours @ 212º F, Mass Change, max | 45% | ASTM D471 |

Furnish manufacturer's certification for production of polychloroprene represented, showing test results for the cured material supplied and certifying that it meets all specified requirements.

The seal element shall be one piece, and full length of the expansion joint including curb and parapet face projections. The lubricated adhesive for installing the preformed elastomeric elements in place shall be one-part moisture curing polyurethane and hydrocarbon solvent mixture as recommended by the manufacturer.

**C Construction**

**C.1 Design**

Design all components of the prefabricated modular expansion joint assembly to satisfy the limit states using the loads, load distribution factors, and load factors as specified in AASHTO LRFD Bridge Design Specifications Article 14.5.6.9.

**C.2 Shop Drawings and Test Reports**
The manufacturer of the prefabricated expansion joint assembly shall prepare shop drawings showing details of the fabricated assembly and installation. At a minimum, include the required information specified in the current AASHTO LRFD Bridge Construction Specifications Article 19.2.2 in the submitted shop drawings. In addition, the manufacturer shall submit test reports and certificates specified in the current AASHTO LRFD Bridge Construction Specifications Article19.2.2.

**C.3 Fabrication**
Fabricate the modular expansion device system in accordance to the details shown on the shop drawings. Tolerance requirements shall be in accordance to AASHTO specifications.

**C.3.1 Support Bars**
If guided expansion bearings are provided at the expansion joint location, fabricate and place support bars parallel to the intended direction of joint movement. Otherwise fabricate and place support bars parallel to the roadway. Provide support bars at a maximum support assembly spacing of 4'-0". Furnish support bars that are not less than 1½-inches in width and at least 4-inches in height; each transverse center beam shall have an individual support bar.

Support bars shall incorporate stainless steel sliding surfaces to minimize resistances to joint movements. Stainless steel shall be welded to support bars. Support the support bars above, below, and laterally as required to prevent uplifting, transmit bearing loads, and to maintain positioning of the bar.

Fabricate support bar bearings from polyurethane compound with PTFE self lubricating surfaces having engineering properties equivalent to adiprene, Teflon, or cast nylon with MDS. Positively lock the support bar bearings and springs or spacers into the support box by a dowel or pin. The connection must permit subsequent removal and replacement of the bearings and springs. The support bar springs shall be constructed similarly to the bearings but shall provide the required precompressive force to maintain the support bar in place while under traffic loads. Use a suitable equilibrium device that works counter to the compression forces of the sealing elements to maintain equalized expansion properties for each element across the modular joint assembly. Furnish anchor plates for the support bar springs or neoprene blocks that have a minimum thickness of ¾-inch.

**C.3.2 Transverse Center Beams**
Transverse center beams shall be at least of 4½-inches in height and have a minimum vertical web thickness of ¾-inch. Make shop splices in the transverse center beam with a full penetration weld. The exterior transverse beams shall have a minimum vertical web thickness of ¾-inch.

The connections between the transverse center beams and support bars shall be a full penetration weld in accordance to the details shown on the plans. Full penetration welds to be tested by ultrasound using the compressive criteria.

**C.3.3 Support Bar Boxes**
Furnish support bar boxes that consist of steel plates not less than ½-inch in thickness fabricated with continuous welds at all joints. The inside dimensions of the box shall be consistent with all boxes and within +0.040 inches of prescribed height as measured where the bearings and spring compress about the support bar. Fabricate support box plates with a continuous weld. Make anchorage details as shown on the plans.

**C.3.4 Structural Steel Surfaces**
Galvanize after fabrication, in accordance to ASTM A123, all structural steel surfaces of the expansion joint devices and anchorages, except ASTM A490 bolts, components of stainless steel, and parts coated with polyurethane, adiprene, nylon, or Teflon.

Galvanize or metallize in accordance to standard spec 635 all bolts, nuts, washers, and steel components that are not galvanized using the above procedure, including all ASTM A490 bolts.

If a retainer clip is used for locking the neoprene strip type seal, continuously weld it on its top side. Due to the galvanizing coating requirement, also make a continuous weld underneath the clip.

All welding shall be in accordance to AWS D1.5 or D1.6 of the welding code and shall be done by certified welders only. A shop certified under AISC category for simple structures shall perform fabrication.

The fabricator will be permitted to shop weld pre-galvanized transverse roadway sections, complete with anchorages, of the expansion device steel extrusions. The pre-galvanized roadway sections shall be not less than 10 feet long. The pre-galvanized roadway side sections shall have additional anchorages, if required, so as to provide an anchorage within 9 inches of each end of the section. Abutting ends shall be beveled ¼-inch on three sides and deburred. All galvanizing shall be completely removed from the areas to be welded. The pre-galvanized sections shall be groove welded on three sides with care taken to prevent weld material from entering the gland groove. The weld across the top of the extrusion shall be ground smooth and all areas of galvanizing damaged by the welding operations shall be repaired in accordance to standard spec 635. Make field splices in transverse center roadway sections with a partial penetration weld.

**C.4 Installation**
Install in accordance to the plan details, standard spec 502.3.6.3.3, the manufacturer's and supplier's approved shop drawings, and as directed by the engineer. Support the modular joint assembly at 8'-0 minimum spacing along both sides of the joint during installation and prior to deck concrete placement.

Remove all modular expansion joint forming material from the joint opening. Pre-set the modular joint assembly in accordance to the approved shop drawings, joint temperature setting data, and specifications. The maximum joint opening for a single modular unit shall be 3 inches.

Installation tolerances shall be within the limits specified in Article 19.5.4.3.5 of the current AASHTO LRFD Bridge Construction Specifications.

The joint assembly manufacturer shall furnish technical assistance to the contractor and engineer through the personal services of a technical representative, who is a fulltime employee of the manufacturer during installation of the joint sealing systems. This representative shall be accessible to the engineer and shall be at the site during the work that involves the setting of all parts of each modular expansion joint assembly. The contractor shall be responsible for informing the representative prior to the date of installation.

**D Measurement**

The department will measure Expansion Device Modular LRFD (Structure) as a single lump sum unit of work for the structure, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.4530 | Expansion Device Modular LRFD B-40-786 | LS |
| SPV.0105.4535 | Expansion Device Modular LRFD B-40-787 | LS |
| SPV.0105.4540 | Expansion Device Modular LRFD B-40-853 | LS |
| SPV.0105.4545 | Expansion Device Modular LRFD B-40-854 | LS |
| SPV.0105.4550 | Expansion Device Modular LRFD B-40-856 | LS |

Payment is full compensation for designing, preparing and submitting shop drawings, providing test reports and certificates, providing on-site technical assistance, furnishing and placing the device complete in place; furnishing and completely installing all elements and parts of the joints, anchors, armor or structural metal; galvanizing materials; furnishing and installing all hardware, pads, bonding material, and reinforcing bars within the blockout not otherwise covered for payment, and barrier railing plates.

## 368. Vibration Control and Monitoring of 96-inch Storm Sewer, Item SPV.0105.4560.

**A Description**

Vibration producing activities such as pile driving, vibratory compaction, pavement breaking or operation of heavy construction equipment may be required for construction of this project. The contractor is advised that structures are located close to the proposed work and that construction activities shall be conducted so as to preclude damage to same. The contractor is responsible for any damage caused by his activities.

The vibration control and monitoring shall consist of two parts. A preconstruction survey of existing 96-inch concrete storm sewer pipe and structures from Station 127EW+00 to 133EW+00 under the proposed B-40-870 shall be conducted by the contractor prior to the

commencement of any vibration producing activity. The survey shall include a visual inspection, photographs, and a written report describing the existing defects in the pipe being inspected and any structural elements that may require support or repair. The second part, performed after vibration causing construction activities, shall also include a visual inspection, photographs, describing any change in pipe and storm sewer structure condition and proper corrective action taken to repair or replace any portion of pipe and/or structure with a written report shall be submitted detailing all activities.

**B (Vacant)**

**C Construction**

Prior to any construction activities, thoroughly inspect the pipe and storm sewer structures for existing defects, including interior walls. Submit a written report of the inspector's name, date of inspection, descriptions and locations of defects, and photographs. The intent of the written report and photographs is to procure a record of the general physical condition of the pipe and storm sewer structure interior walls.

Install crack displacement monitoring gages as appropriate across any significant existing cracks to help verify any additional distress if it should develop. Establish the appropriate location, number, and type of gages. The gages will be read prior to vibration producing activities, as well as during these activities. Obtain data on a weekly basis for as long as vibration-producing activities are being conducted. Submit a report summarizing the data. Alert the engineer if any significant movement is detected by the monitoring gages.

The photographs shall be taken by a professional photographer capable of producing sharp, grain free, high-contrast colored pictures with good shadow details. The photographs shall be 3½ inch by 5 inch color prints, glossy, and mounted in protective storage pages with clear slip-in pockets and clear background. Each sheet shall hold four prints. The back of each photograph shall contain the following information:

ID _____
Location _____
View looking _____
Date _____
Photographer _____

Prior to the start of any construction activities pertinent to this survey, submit a copy of the written report and photographs to the engineer.

Pumping may be required for initial survey, monitoring, any repairs if required and final inspection.

Provide the corrective action procedure in writing to the engineer and obtain acceptance from the engineer prior to starting the repair work for the damaged portion.

After the construction activities are complete, conduct another survey in the same manner, take photographs, and submit another written report to the engineer.

In lieu of photographs, a professional videographer may be hired to use a video camera capable of producing a video with the clarity required to perform this work.

**D Measurement**
The department will measure Vibration Control and Monitoring of 96-Inch Storm Sewer as a lump sum unit of work acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.4560 | Vibration Control and Monitoring of 96-inch Storm Sewer | LS |

Payment is full compensation for vibration control and monitoring of 96-inch storm sewer pipe and structures including all work required to complete the surveys and required corrective work. No separate payment will be made for vibration control, monitoring and repairing any damaged portion of 96-inch pipe and/or storm sewer structures.

## 369. Galvanized Steel Grating, Item SPV.0105.4565.

**A Description**
This special provision describes providing and installing galvanized steel grating between the north abutment of bridge B-40-769 and the coping of retaining wall R-40-467 as shown on the plans and as hereinafter provided.

**B Materials**
**B.1 Carbon Steel Grating**
Bearing bars and cross bars: ASTM A1011 commercial steel Type II for hot rolled carbon steel sheet and strip or ASTM A36. Cross bars made from wire rods are not permitted.

**B2. Angle and Bent Plate Grating Supports**
ASTM A36

**C Construction**
Provide manufactured steel, press locked bar grating with minimum bearing bar size and maximum bearing and cross bar spacing called for in the plans fabricated in accordance to NAAMM MBG 531-09. (National Association of Architectural Metal Manufacturers, Metal Bar Grating Manual, 2009)

The contractor shall determine the required grating span and grating layout through field measurements. Individual grating panels shall be not less than 1.5 feet or greater than 3.0 feet in width. Grating shall be pre-cut and fabricated in the shop. Field cutting of grating panels is not permitted.

Each grating panel shall be removable and replaceable. Provide compatible grating anchor saddle clips, bolts, nuts and washers to anchor each individual grating panel section with bolt head or nut recessed below the top of the grating surface. Anchor clips shall be removable from the top of the grating surface. Provide and install a minimum of four anchor clips per grating panel section.

Provide rolled steel angle for grating support as shown on the plans. Mount grating supports using concrete adhesive anchors as shown in the plans.

Hot-dip galvanize grating panels after fabrication. Hot-dip galvanize all grating accessory components including steel angle grating supports, saddle clips and mounting bolts. Galvanize per ASTM-A153.

**D Measurement**

The department will measure Galvanized Steel Grating as a single lump sum unit of work for each structure, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.4565 | Galvanized Steel Grating | LS |

Payment is full compensation for field measurements, grating fabrication and installation, angle grating supports, saddle anchor clips, bolts, nuts and washers, miscellaneous hardware, hot-dip galvanizing.

## 370. Metalizing B-40-787, Item SPV.0105.4570.

**A Description**

This special provision describes surface preparation, application of a thermal sprayed metal coating (metalizing) to portions of the structural steel for B-40-787 as designated on the plans. All work shall be done at the steel fabrication shop unless otherwise noted.

**A.1 Reference Specifications**

The requirements as outlined in the Joint Standard SSPC-CS 23.00/AWS C2.23M/NACE No. 12 "Specification for the Application of Thermal Spray Coatings (Metalizing) of Aluminum, Zinc, and Their Alloys and Composites for the Corrosion Protection of Steel" shall be followed and considered as part of this special provision.

**A.2 Contractor Prequalification**

The metalizing contractor shall have satisfactorily performed three previous projects involving the preparation of steel surfaces or other large structural members for metalizing, and then thermally spraying various metals or alloys onto them. The metalizing contractor shall have performed at least one similar project within the past two

years, and provide documentation of successful completion of projects that incorporated the use of thermal spraying. Prior to the pre-construction meeting or the beginning of any work on this project, provide the department a list of previous clients, including the names, addresses and telephone numbers of successfully completed projects. Suitability of the metalizing contractor's qualifications and prior experience will be considered by the department before granting approval to proceed.

**B Materials**

The wire used for metalizing shall be zinc per ASTM B-833, Standard Specification for Zinc Wire for Thermal Spraying (Metalizing). Use of aluminum or zinc/aluminum wire is not permitted. The metalizing material shall satisfy the requirements for Class B or better slip coefficient and creep resistance per Appendix A of the "Specification for Structural Joints Using High-Strength Bolts" by the Research Council on Structural Connections. Provide the test results to the engineer prior to the start of work.

Use a penetrating epoxy polyamide sealer over the metalized surface. Ensure that the epoxy sealer is compatible with the approved epoxy paint system to be applied over the sealed metalized surface.

**C Construction**

**C.1 General**

This procedure governs the methods, requirements and procedures for applying thermal sprayed metal onto new steel surfaces. The process consists of melting metal and spraying it onto a prepared surface by means of compressed gas. All steel surfaces designated on the plans shall be metalized unless otherwise noted.

**C.2 Equipment**

All cleaning equipment shall include gauges capable of accurately measuring fluid and air pressures and shall have valves capable of regulating the flow of air and or water as recommended by the equipment manufacturer. The equipment shall be maintained in proper working order.

Metalizing and surface preparation equipment shall utilize filters, traps or separators recommended by the manufacturer of the equipment and shall be kept clean to prevent oil, water, dried paint and other foreign materials from being deposited on the surface. The filters, traps and separators shall be cleaned or drained by means, and at intervals, recommended by the manufacturer of the equipment.

Pressure type abrasive air blasting equipment shall be capable of supplying a minimum of 100 psi (690 kPa) pressure and 250 CFM (120 L/S) capacity with all air blast nozzles being used. If blast nozzle orifice sizes larger than 3/8 inch (9.5 mm) are being used, the minimum capacity of the equipment shall be increased in accordance to the recommendations of SSPC Good Painting Practice, Volume 1, Chapter 2.4, and Table 1. The pressure will be measured at the blast nozzle. The equipment shall be capable of providing the minimum required pressure and volume, free of oil, water and other contaminants.

Diesel or gasoline powered equipment shall be positioned or vented in a manner to prevent deposition of combustion contaminants on any part of the structure.

Prior to beginning all metalizing operations, air equipment shall pass the requirements of ASTM D 4285. This test will be repeated as determined by the engineer.

The metalizing unit shall be a gun manufactured by an established domestic company. The gas or arc type is acceptable and recommended. The equipment shall be used according to manufacturer's recommendations. No surface shall be sprayed which shows any sign of rust, scale or moisture. All metalizing shall be applied within a maximum of four hours of the blasting. Spraying shall be done in a block pattern not to exceed 2 feet (600 mm) on a side with overlapping passes to ensure uniform coverage.

**C.3 Test Sections**

Before any metalizing is done, prepare a test section for each batch or lot of wire supplied. Submit a steel plate approximately 12 inch x 12 inch (300 mm x 300 mm) to which the metal has been deposited to the specified thickness, as checked with a magnetic or Eddy Current Gage, and obtain approval from the engineer as to grain size and texture of the sprayed metal. The test plate will be used to determine the acceptance of the finished job.

**C.3.1 Acceptance**

The engineer will perform the following test for adhesion on the metalized surface of the test plate. The engineer will cut through the coating with a knife or chisel, if the metalizing or any part of it can be lifted from the base metal 1/4 inch (6 mm) or more ahead of the cutting blade without actually cutting the metal, the surface preparation will be deemed improper and the coating will be considered unsatisfactory. Each spray operator shall be qualified to metalize according to ANSI/AWS C2.18-93. Any operator who does not show evidence of qualification shall not be allowed to spray.

**C.4 Surface Preparation**

The surface preparation shall be accomplished in accordance to the requirements of Steel Structures Painting Council (SSPC) Surface Preparation Specifications SP1 for Solvent Cleaning and SP10 for Near White Blast Cleaning. Unless otherwise specified, the surface preparation shall result in 2 to 4 mil (50 to 100 microns) blast profile as determined by the engineer.

Abrasive shall be hard and sharp in order to produce an angular surface profile. Acceptable abrasives include but are not limited to, angular aluminum oxide, angular steel grit and angular crushed slag. Silica sand shall not be used. Steel shot and other abrasives producing a rounded surface profile are not acceptable. However, the steel can be prelisted with shot provided that the entire surface is re-blasted with angular abrasive. Submit a sample of the abrasive to the engineer two weeks prior to surface preparation for testing and approval.

Prior to surface preparation, prepare a test section on a representative section of the structural steel. Prepare the test section using the same equipment, materials and procedures as the production preparation. Prepare the test section surface to the specified level in accordance to the SSPC visual standards supplied by the engineer. Ensure a test section area has been approved by the engineer prior to preceding with surface preparation operations. The test section shall be 10 square feet.

The average surface profile produced by the contractor's surface preparation procedures will be determined at the beginning of the work and as required by the engineer using a profile depth tape and micrometer. Profile depth tape measurements shall be retained and included with quality assurance documents. Single measurements less than 2 mil (50 microns), or greater than the specified maximum for the metalizing system used will be considered unacceptable. Areas having unacceptable measurements will be further tested to determine the limits of the deficient area. If unacceptable profiles are provided, work will be suspended. Submit a plan for the necessary adjustments to ensure the correct surface profile on all surfaces. Do not resume work until notified in writing by the engineer.

The visual standards shall be used in addition to the plans and specifications to determine the degree of conformance with the appearance requirements and to determine acceptance of surface preparation. Preparing test sections are incidental to this item.

Abrasive suppliers shall certify that abrasives are not oil contaminated and shall have a water extract pH value within the range of 6 to 8. All surfaces prepared with abrasives which are oil contaminated or have a pH outside the specified range shall be cleaned with solvent cleaner or low pressure water as directed by the engineer and re-blasted at the contractor’s expense.

If the surface is degraded or contaminated subsequent to surface preparation and prior to metalizing, the surface shall be re-blasted before metalizing. Ensure all surfaces cleaning have been approved by the engineer prior to metalizing.

The surfaces to be metalized after surface preparation must remain free of moisture and other contaminants. Ensure that dust, dirt or moisture does not come in contact with surfaces prepared that day.

**C.4.1 Temperature and Humidity**

In addition to the metalizing system's manufacturer's written instructions for surface preparation, and metalizing, the following conditions shall apply. When in conflict, the most restrictive conditions shall govern.

Apply metalizing indoors, in a controlled protected environment. The minimum steel and air temperatures shall be 40° F (4° C). The maximum indoor relative humidity is 85%. Metalizing shall not be applied when the relative humidity is above 85%.

**C.5 Metalizing**
The thickness of the metalizing shall be 8 - 10 mils (200-250 microns) measured as specified by SSPC-PA2.

To produce the required thickness and uniformity, a minimum of two passes are required, overlapping and at right angles to each other. The gun shall be held at such a distance from the work surfaces that the metal is still plastic on impact 5 to 9 inches (125 mm - 230 mm). The coating shall be firmly adherent and free from uncoated spots, lumps or blisters, and have a fine sprayed texture.

Provide facilities to protect the finished metalized surface from damage during the blasting and thermal spraying work operations on adjacent areas. Repair and re-metalize all damaged coated areas Protect all surfaces not intended to be metalized from the effects of cleaning and metalizing operations.

Apply metalizing as a continuous film of uniform thickness free of pores. All thin spots or areas missed in the application shall be re- metalized.

Notify the engineer a minimum of one week prior to starting surface preparation or metalizing. The engineer will inspect completed sections of metalizing prior to acceptance. The coatings shall be checked for thickness by means of an approved thickness gauge. Add metalizing to any areas failing to register minimum thickness before any oxidation of the surface occurs.

**C.5.1 Acceptance**
Up to two locations on each beam will be tested for adhesion as outlined in paragraph C.3.1. All areas tested shall be repaired and re-metalized according to this specification. Correct the coating by an acceptable repair method to produce a surface comparable to the approved test section if the coating is inferior to the sample.

**C.6 Sealing**
Apply an approved penetrating epoxy polyamide sealer over the metalized surface in accordance to Section 9 of SSPC- CS 23.

**C.7 Painting Metalized Structural Steel**
Paint all metalized steel according to standard spec article 517. Consult with the paint manufacturer of the coating system to be used. If recommended by the paint manufacturer, use a special prime or tie coat over the metalized surfaces specifically intended to prepare and adhere the top coats to the sealed zinc metalized surfaces.

**C.8 Quality Control**
Conduct a quality control program which ensures that the work accomplished complies with these specifications. The quality control program shall consist of:

1. Qualified personnel to manage the program and conduct quality control tests.
2. Proper quality measuring instruments.
3. Quality Control Plan.
4. Condition and quality recording procedures.

The personnel managing the quality control program shall have considerable experience and knowledge of metalizing and industrial coatings and the measurements needed to assure quality work. The personnel performing the quality control tests shall be trained in the use of the quality control instruments. These personnel shall not perform metalizing and surface preparation.

Supply all necessary equipment to perform quality control testing of weather conditions, equipment, surface preparation and profile, metalizing thickness. Calibrate these instruments in accordance to the equipment manufacturer's recommendations.

Implement a Quality Control Plan and obtain approval from the engineer including; a schedule of required measurements and tests as outlined herein, procedures for correcting unacceptable work and procedures for improving surface preparation, and metalizing quality as a result of quality control findings. Use forms supplied by the engineer to record the results of quality control tests. These reports shall be available at the work site for review by the engineer.

Quality control tests will not be used as the sole basis for acceptance of the work.

**D Measurement**

The department will measure Metalizing B-40-787 as a single lump sum unit of work, acceptably completed.

**E Payment**

The department will pay for the measured quantity at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.4570 | Metalizing B-40-787 | LS |

Payment is full compensation for providing all materials, test sections, surface preparation, applying metalizing, applying epoxy sealer, quality control, acceptance testing, correcting and/or removing deficient metalizing work and re-metalizing.

Painting sealed metalized structural steel will be paid for separately under the item Painting Epoxy System B-40-787.

## 371. State-Furnished Water Booster Station, Item SPV.0105.5000.

### A Description

This special provision describes installing, maintaining, removing, and transporting a state-furnished temporary water booster pump system at Burleigh Street including 12-inch ductile iron flanged piping for suction and discharge as detailed in the plans to maintain the required system pressure. This system will need to be tested and operational before the existing 24-inch water main at Wisconsin Avenue can be taken out of service.

Perform work under this item in accordance to the plans, standard specifications, Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and amendments (SSSW), and as hereinafter provided and these special provisions.

### B Materials

#### B.1 Skid Mounted Temporary Booster Station

The department is furnishing a skid mounted booster station along with pumps, control panel, valves, flow meter, gauges, piping, assemblies, and appurtenances. The materials are stored at Super Excavators, Inc., N59 W14374 Bobolink Avenue, Menomonee Falls, WI. Provide three day notice to Pete Schraufnagel of Super Excavators at (414) 491-5655 prior to transporting the equipment.

The skid mounted booster station shall connect with hard piping to the 12-inch suction and discharge piping as shown on the plans. The station will have a connection terminal for a stand-by generator to supply power for operation. Power the pumping system using a portable generator with cable.

The station shall be vented to provide proper operating temperatures.

System Operational Parameters are as follows:

- Peak flow rate of 3,000 gallons per minute.
- System shall be supplied a minimum suction pressure of 35 PSI.
- System rated maximum discharge pressure of 85 PSI.
- Power shall be 3-phase 460 volts.
- Three end suction pumps with mechanical seals, each rated at 1,000 GPM at 120’ TDH.
- Pumps shall operate at 85% efficiency.
- Three 40 HP motors, 1800 rpm TEFC 92% efficient motors, conforming to MG-1 part 32 for use on inverter with winding temperature switches and motor space heaters.

**B.2 Startup and Testing**

Mounting details and technical start up shall be furnished by the pump station manufacturer. Contact Mr. Jeff Blindt of Engineered Fluid, Inc. at (618) 533-1351 at least twenty working days prior to beginning work on the State-Furnished Water Booster Station. Electrical connection, will be provided by the contractor and, shall consist of a single conduit from owners disconnect to the pump station main disconnect. Additional responsibility shall include confirming correct motor rotation and securing local inspection/approval. Include one day of service.

Technical start up procedures by the pump station technician shall include the following:

- Station start up and pressurization.
- Pressure, flow and programming adjustments.
- Monitoring of complete flow.
- Customer training.

The pump station manufacturer shall conduct and document a complete test of the temporary water booster station. The pump station shall be tested throughout the entire operating range at the net discharge pressure called for in the technical specifications. Individual pump pressure, flow, RPMs, volts, amps, KW and power factor shall be documented for verification by the engineer.

**B.3 Training**

Provide training to the City of Wauwatosa Water Utility regarding proper operation and maintenance of the equipment. One training session is required at the site. Contact Jim Wojcehowicz at (414) 479-8965 to coordinate the training.

**C Construction**

**C.1 Water Main**

At least twenty working days prior to beginning work on the State-Furnished Water Booster Station, contact Mr. Jim Wojcehowicz, Water Superintendent for the City of Wauwatosa Water Utility, 7725 W. North Ave, Wauwatosa, WI 53213, at (414) 479-8965. Set up and attend a preconstruction meeting with the City of Wauwatosa and the engineer.

Two existing riser pipes are located one on each side of an existing pressure relief valve (PRV). The PRV steps down the water pressure from 90 psi to 40 psi. During construction of the new 24-inch water main at Wisconsin Avenue, the 90 psi zone will lose service, and the temporary booster pump will need to maintain this zone pressure.

The existing PRV will need to be adjusted before the temporary booster pump can be made operational. The existing PRV will provide relief during low water usage.

Install all fittings, flanges, ductile iron pipe, and sample ports required to complete the project as shown on the plans. Install the skid mounted temporary booster station per the manufacturer's recommendations.

An existing concrete pad with approximate dimensions of 12-foot by 10-foot is located in the median as shown on the plans and is flushed with the adjacent ground elevation. Bolt and secure the pump skid to the existing concrete pad in accordance to the manufacturer's recommendations or as directed by the engineer.

All equipment shall be suitably protected from the environment and freezing. Provide a heated air enclosure if the operating temperature in below 32 degrees Fahrenheit.

Flush the system after the ductile iron piping connections are complete. Pressure test the system to 150 psi. Collect and test water samples. Submit reports for two safe water samples taken 24 hours apart to the City of Wauwatosa. The City of Wauwatosa will review the results and provide acceptance no later than 48 hours from receiving the reports. The City of Wauwatosa must confirm the safe water results before the temporary booster pump system can be operated. After the safe water results are confirmed, test the temporary booster pump system for a one week trial run to be completed 5 days before the system can be put into service.

Provide a portable restroom facility outside the roadway within right-of-way at a location approved by the engineer. Do not obstruct sight distance for the traveling public.

The City of Wauwatosa Water Utility will provide an operator on site for 24 hours per day when the temporary booster pump system is in operation. An operator is required 24 hours per day for the one week trial run period and for the entire duration the 24-inch water main at Wisconsin Avenue is out of service. At least two weeks prior to needing an operator, contact Jim Wojcehowicz at (414) 479-8965 to coordinate the schedule for operation.

After the engineer determines the temporary water booster station is no longer required, dewater riser pipe assemblies. Remove and salvage the upper riser pipe assemblies and flanged ductile iron piping located above existing grade. Install a flange plate flush with existing ground to cap the lower riser pipe assemblies. Remove water from the 12-inch riser pipes before capping.

**C.2 Restoration**

Remove the existing concrete booster pump support pad and temporary asphaltic surface in the median as directed by the engineer. Install erosion control devices and restore disturbed areas as directed by the engineer. Erosion control and restoration will be paid for under their standard bid items.

**C.3 Traffic Control**

Install traffic control devices as directed by the engineer in accordance to the pertinent provisions of standard spec 643.3 and as hereinafter provided. For the delivery of equipment and materials, place traffic control devices conforming to the standard detail drawings for Traffic Control, Single Lane Closure, Non-Freeway/Expressway; Traffic Control, Intersection within Single Lane Closure; and Traffic Control, Sidewalk Closure. Do not impact traffic on Burleigh Street during peak hours.

**C.4 Protecting the Site**
Prior to beginning water main work, install items required for the proper protection of persons on the site and members of the pubic including but not limited to barricades, warning signs, and safety fencing. Delivery and installation of the temporary precast concrete barrier will be paid for under their standard bid items.

After the portable generator has been removed and work on the State-Furnished Water Booster Station has been satisfactorily completed and approved by the engineer, remove all items required to protect the site.

**C.5 Remove and Salvage Pumps**
Carefully disassemble, remove and salvage the pumps along with skid, control panel, valves, flow meter, gauges, piping, assemblies, and all appurtenances. The State-Furnished Water Booster Station and associated salvaged materials will become property of the contractor after construction.

**D Measurement**
The department will measure State-Furnished Water Booster Station as a lump sum unit of work for pump system assembly, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.5000 | State-Furnished Water Booster Station | LS |

Payment for State-Furnished Water Booster Station is full compensation for contacting the City of Wauwatosa and Super Excavation Inc.; for setting up and attending a preconstruction meeting with the City of Wauwatosa; for transporting, assembling, installing, disassembling, removing and salvaging upper riser pipes, ductile iron pipe, pumps along with skid, control panel, valves, flow meter, gauges, piping, assemblies, sample ports, and all appurtenances; for bolting and securing the pump skid; for furnishing and installing all fittings and flanges; for furnishing, running, maintaining and removing a portable generator; for installing, running, maintaining, and removing the temporary booster station; for providing a heated air enclosure; for furnishing all safe water and pressure testing; for collecting water samples, testing, and submitting water sample reports to the City of Wauwatosa; for adjusting the existing PRV; for testing the temporary booster pump system for a one week trial run; for contacting Engineered Fluids and associated startup and testing fees; for furnishing all dewatering; for furnishing, maintaining and removing a portable restroom facility; for providing all training; for furnishing, installing, maintaining and removing all traffic control devices required to complete this work; for furnishing, installing and removing items required for the proper protection of the site including but not limited to barricades, warning signs, and safety fencing; for capping the lower riser pipe assemblies; and for removing the existing concrete booster pump support pad and temporary asphaltic surface in the median.

## 372. Abandon Temporary Connection and Existing Water Main, Item SPV.0105.5001.

### A Description

Perform the work in accordance to the plans, the Standard Specifications for Highway and Structure Construction, latest edition and amendments, the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and amendments (SSSW), and as hereinafter provided and these special provisions.

### B Materials

All materials and work required to abandon existing water main will conform to the SSSW.

### B.1 Cellular Concrete

Provide cellular concrete meeting the following specifications: 1 part cement, 1 part fly ash, 8 parts sand, or an approved equal, and water. Provide cement meeting the requirements of standard spec 501.2.1 for Type 1 Portland Cement. Provide sand meeting the requirements of standard spec 501.2.5.3. Provide water meeting the requirements of standard spec 501.2.4.

### C Construction

Abandon water main in accordance to Section 3.2.24 of the SSSW except modified to require all water main which is to be abandoned and has not been removed shall be filled with cellular concrete. Field verify water main has been decommissioned prior to abandonment.

### D Measurement

The department will measure Abandon Temporary Connection and Existing Water Main as a lump sum unit of work, acceptably completed.

### E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.5001 | Abandon Temporary Connection and Existing Water Main | LS |

Payment is full compensation for providing all materials including all excavation, and abandoning existing water main with cellular concrete; for providing backfill material, and surface restoration.

## 373. Chevron Solar Powered Sign System Assembly Ramp SW, Item SPV.0105.6002; Ramp NE, Item SPV.0105.6004; Ramp NW, Item SPV.0105.6006; Ramp WN, Item SPV.0105.6008; Ramp SE, Item SPV.0105.6010; Ramp WS, Item SPV.0105.6012.

### A Description

This work consists of furnishing and installing a Chevron synchronized sign system that is solar powered with a radar activation device and supplying light assemblies that are wirelessly controlled. The following ramps have the following number of chevrons that make up this system:

| | |
|---|---|
| SW ramp | 8 chevrons |
| NE ramp | 7 chevrons |
| NW ramp | 6 chevrons |
| WN ramp | 14 chevrons |
| SE ramp | 6 chevrons |
| WS ramp | 8 chevrons |

This work also includes supplying multiple synchronized units as detailed in the plans.

### A.1 General Requirements

A.1.1 Supply and install Chevron sign systems that consist of a Day-Viz LED Blinkersign or approved equal and conform to the 2009 Federal Highway MUTCD section 2A.07 on retro reflectivity and illumination.

A.1.2 Supply and install Chevron sign systems as a complete assembly, consisting of but not limited to, the pole, breakaway Device, sign mounting, radar device, solar panel, radio and electrical components (wiring, battery, solid-state circuit boards, etc).

### A.2 Functional Requirements

A.2.1 Furnish each Chevron sign system with solar power.

A.2.2 Furnish each Chevron sign system with a radar device that will activate the sign system.

A.2.3 Furnish a Chevron sign system that will be seen as normally dark, that initiates operation only upon radar activation over a set speed threshold, and that ceases operation after a predetermined time limit (based on MUTCD procedures).

A.2.4 Furnish each remote Chevron sign system with a wireless activation mechanism, using a 900Mhz radio housed in an enclosure mounted to the sign as shown on the plans.

A.2.5 Supply Chevron sign system LED's that flash in a sequence from near to far.

A.2.6 Supply wireless synchronization for all Chevron signs (All lights will turn on within 120msec and remain synchronized through-out the duration of the flashing cycle).

A.2.7 Furnish Chevron sign systems that flash from 1 to 8 sec. with an adjustable offset to the next sign.

A.2.8 Supply each Chevron sign system with one radar activated device on the first sign as to trigger incoming vehicles over a specified speed.

**B Materials**

Furnish a Chevron sign system as a complete assembly, consisting of but not limited to, breakaway device, signage, sign mounting, radar activation device, solar panel, battery, solar controller, wireless radio and electrical components (wiring, solid-state circuit boards, etc) and as detailed below:

**B.1 LED Blinkersign**

Supply blinkersign with:

a. A TAPCO Day-Viz™ LED enhanced, fully self-contained Blinkersign™ conforming to the 2009 Federal Highway MUTCD section 2A.07 on retro reflectivity and illumination or approved equal.

b. A high power Luxeon® light emitting diodes (LED) that provides maximum daytime brightness with automatic dimming for reduced night brightness. Mount the LEDs in the border of the arrow to conform to federal standards on all signs.

c. 3M DG3 prismatic sheeting or similar with Anti-Graffiti overlay.

d. signs conforming to MUTCD standards.

e. 0.080 or 0.100 gauge aluminum on all sign blanks.

f. 3M DG3 or similar prismatic sheeting, unless required with a lower grade of reflectivity.

g. Anti-vandal fasteners to mount components to sign and sign to fixture on all sign assemblies.

h. TAPCO # 2180 Day-Viz on all sign assemblies or approved equal.

**B.2 LEDs**

a. Supply up to 10 high power single watt Luxeon® LEDs that provide a maximum light intensity of up to 600,000 mcd (millicandelas) with a viewing angle of 20° for each sign assembly.

b. Match the color of the sign amber (587.5-590) to all LEDs, as per section 2A.07 of the MUTCD.

c. Seal each LED in 7/8" diameter, heat dissipating plastic enclosure to provide resistance to weather and vibration. Supply a center LED that is less than ¼ inch.

d. Mount All LED enclosures in a 1 inch hole and ultrasonically weld to the sign assembly.

e. Wire all LEDs in a parallel string. Provide for the event of a single LED failure so not all LEDs fail.

f. Activate all LEDs simultaneously as per MUTCD standards.

g. Use wire conforming to military specifications, MIL-W-16878D, Type D, and enclose in a vinyl nylon jacket.
h. Cover and secure wiring to the sign assembly using a 1”x3/8” aluminum weather resistant extrusion.
i. Use LED connectors conforming to Ingress Protection, IP-67 rating, Use dust proof connectors, and protect from temporary immersion in water up to 1 meter deep for 30 minutes. Supply Deutsch DTM series connectors.
j. Supply a TAPCO # 3012 LED or approved equal.

**B.3 Control Circuit**
Supply and install the following:

a. A control circuit that has the capability of independently flashing a single output or alternate a double sign. Supply a flashing output level that is user programmable with the use of a Windows GUI (Graphical User Interface) Software programming device.
b. A flashing output that has 50 to 60 flashes per minute with 100 msec – 500 msec duration on time or 1-8 sec flash with an adjustable offset from the previous sign. Supply outputs that reach the output current as programmed for the duration of the programmed pulse.
c. An output current that is individually programmable for day and night time operation. Use daytime and nighttime flashing current ranges from 0 mA to 2000 mA with 1 mA increments. The day and nighttime mode will automatically be determined by solar panel charge input or photo eye input if desired. Supply a daytime and nighttime mode that is programmable up to 6 different light levels.
d. A control circuit with operating temperatures of -40 to +80 c.
e. Supply Deutsch DTM series circuit connectors or approved equal conforming to Ingress Protection, IP-67 rating, dust proof, and protected from temporary immersion in water up to 1 meter deep for 30 minutes.
f. A TAPCO # 2538-30 control circuit or approved equal.

**B.4 Battery**
Supply and install the following:

a. A Battery unit with 4.8 volt 14000mAH Nickel Metal Hydride (NiMH).
b. Sealed in a plastic film.
c. Corrosion and moisture resistant batteries with operating temperatures of -20 to +60 ºC.
d. Battery connectors with an Ingress Protection, IP-67 rating, dust proof, and protected from temporary immersion in water up to 3 feet deep for 30 minutes. Supply Deutsch DTM series connectors or approved equal.
e. Internally fused batteries.
f. Batteries equipped with an internal battery temperature control thermal sensor.
g. TAPCO #2795-6 batteries or approved equal.

**B.5 Wireless Radio**
Supply and install the following:

a. A radio control that operates on 900 mhz frequency hopping spread spectrum network.
b. A radio capable of integrating with the communication of the Chevron sign system control circuit to activate sign from Radar unit.
c. Synchronization of all remote Chevron signs with the radio indications so they will turn on within 120 msec of each other and remain synchronized through-out the duration of the flashing cycle with the preset offset determined for sequencing.
d. A radio system capable of operating from 3.6 to 15vdc.

**B.6 Speed Radar Detector**
Furnish and install a one-piece programmable stationary directional true Doppler Radar detector meeting the following requirements:

a. Programmable to monitor only the speed of vehicles coming towards the system.
b. An operation Frequency of 24.125 GHz ±5Mhz with a Power Output 5mW on the K-Band operating band.
c. Operating between 9 to 18VDC with Reverse battery protection with a detection of 300 feet (90 meters) on level road mounted 5 feet off the ground.
d. A Nominal Operating Current/Power 9mAmps @12VDC / 0.1Watts
e. An Operating Temperature range -40 to +185F (-40 to +85 C) and housed in a weatherproof housing.
f. Programmable by an IR Remote Programmer.(Remote optional)
g. Data Interfaces: Serial Communication RS232 and RS485
h. A detector accuracy of +/-0.1 Mph (0.16 Kmph) and a speed range between 10 to 105 Mph (8 to 168 Kph)
i. A US Approval FCC Part 15 for license free operation. The FCC ID is "TIASS300."

**B.7 Solar Panel**
a. Provide and install a solar panel up to 13.5”x15” size and provide up to 13.5 watts peak total output.
b. Mount the solar panel to an aluminum plate and bracket at an angle of 45°- 60°.
c. Use only anti-vandal fasteners.
d. Furnish solar panel connectors that conform to Ingress Protection, IP-67 rating, dust proof, and protected from temporary immersion in water up to 1 meter deep for 30 minutes. Furnish Deutsch DTM series connectors.
e. Furnish only TAPCO # 2772-2 solar panels or approved equal.

**C Construction**

Install the Chevron sign system components as a complete assembly as detailed in the plans and as follows:

a. Mount the blinkersign LEDs in the border of the arrow to conform to federal standards on all signs.
b. Seal each LED in 7/8" diameter, heat dissipating plastic enclosure to provide resistance to weather and vibration. Center LED to be less than ¼".
c. Mount All LED enclosures in a 1" hole and ultrasonically weld to the sign assembly.
d. Wire all LEDs in a parallel string
e. Activate all LEDs simultaneously as per MUTCD standards.
f. Use wire conforming to military specifications, MIL-W-16878D, Type D, and enclose in a vinyl nylon jacket.
g. Cover and secure wiring to the sign assembly using a 1"x3/8" aluminum extrusion.
h. Synchronize all of the remote Chevron signs with the radio indications so they will turn on within 120 msec of each other and remain synchronized through-out the duration of the flashing cycle with the preset offset determined for sequencing.
i. Mount assemblies to wood post as shown on the plan.

**D Measurement**

The department will measure Chevron Solar Powered Sign System Assembly Ramp (Location) a lump sum unit of work, acceptably completed.

**E Payment**

The department will pay for the measured quantity at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.6002 | Chevron Solar Powered Sign System Assembly Ramp SW | LS |
| SPV.0105.6004 | Chevron Solar Powered Sign System Assembly Ramp NE | LS |
| SPV.0105.6006 | Chevron Solar Powered Sign System Assembly Ramp NW | LS |
| SPV.0105.6008 | Chevron Solar Powered Sign System Assembly Ramp WN | LS |
| SPV.0105.6010 | Chevron Solar Powered Sign System Assembly Ramp SE | LS |
| SPV.0105.6012 | Chevron Solar Powered Sign System Assembly Ramp WS | LS |

Payment of the item Chevron solar powered sign system assembly ramp is full compensation for furnishing and installing the Chevron solar powered sign system assembly ramp, for testing, for the mounting hardware, and for preserving and resetting assembly location stakes as indicated on the plans. The department will pay separately for required sign supports.

SEF 15_0114

## 374. Control of Water, Item SPV.0105.8098.

### A Description

This section addresses the provision for designing, furnishing all labor and material needed to control, handle, dispose and treat groundwater and surface water that may be encountered in all excavations as required for performance of the work as shown in the plans.

This special provision does not cover temporary drainage. Conform to standard specification standard spec 205 for temporary drainage.

Refer to the dewatering guidelines of WisDNR Storm Water Management Technical Standards, Code #1061, "Dewatering". This document can be found at the WisDNR website: http://dnr.wi.gov/runoff/stormwater/techstds.htm

### B Materials

The contractor is responsible to determine materials required to meet this special provision.

### C Construction

#### C.1 Submittals

#### C.1.1 General

The discharge permits and water control plan shall be submitted to the engineer at least 30 days prior to start of excavation, unless otherwise noted.

#### C.1.2 Subsurface Conditions

**Manholes Z2683 to Z2431:** The contractor shall review pertinent geotechnical reports for groundwater information and soil types.

#### C.1.3 Submittals

**Discharge Permit:** Submit discharge and well permit applications to Wisconsin Department of Natural Resources (WDNR) if dewatering wells are to be used. Also submit design and calculations for the sedimentation tank or clarifier system to be utilized to reduce sediment levels to minimum levels required by WDNR prior to discharging.

**Water Control Plan:** Water control plan shall be coordinated with requirements of special provisions, articles Shaft Excavation Support System, Tunnel Excavation, and Geotechnical Instrumentation. The following items shall be included in the water control plan, as a minimum.

a. Descriptions of proposed groundwater and surface water control facilities including, but not limited to, equipment, methods, installation, standby equipment and power supply, pollution control facilities including silt removal facilities, discharge locations to be utilized, removal of water control systems, and provisions for immediate temporary water supply as required by this section.
b. The contractor shall submit shop drawings showing locations, dimensions, and relationships of elements of each water control system.

c. Design calculations demonstrating dewatering zone of influence, and adequacy of proposed water control systems and components. The contractor may be required to demonstrate the systems proposed in the water control plan and to verify that adequate equipment, personnel, and materials are provided to dewater the excavations at all locations and times required. The contractor shall provide manufacturer's literature describing installation, operation, and maintenance procedures for all components of the water control system.
d. Monitoring plans including measurement of: pumping rates at excavated locations and wells, reading of piezometers, and water quality sampling of discharge.
e. Method(s) to measure discharge quantities.
f. If system is modified during installation or operation, revise or amend and resubmit Water Control Plan.

**Quality Control:** During construction, submit rate of discharge, pumping rate measurements, water level readings taken at piezometers, groundwater quality data, and sediment content test results. Contractor's readings shall be performed in addition to any readings taken by the engineer. Submit the data and test results within 24 hours of readings.

**C.1.4 Acceptance**

All Information Submittals should be submitted to the engineer. The engineer can reject the submittals which do not contain adequate detail, as required herein. The contractor shall resubmit the rejected submittals within 7 days upon the receipt of the engineer's rejection notice.

**C.2 General Requirements**

The contractor shall continuously control, handle, treat and dispose water at all times during the course of construction, and provide adequate backup systems to accomplish control of water in conformance with this special provision to obtain satisfactory working conditions and to maintain the progress of the work. Water to be controlled includes groundwater, contaminated groundwater; and surface water (precipitation and run-off).

All required drainage, pumping, treatment, and disposal shall be done without damage to adjacent property or structures and without interference with the operations of other contractors, or the rights of public and private owners, or pedestrian and vehicular traffic.

The contractor shall modify the water control system at their own expense if, after installation and while in operation, it causes or threatens to cause damage to adjacent property or to existing buildings, structures, or utilities.

**C.3 Regulatory Requirements**

Storm water discharge to storm sewers, watercourses, lakes, and wetlands shall conform to the requirements of local, state, and Federal regulations. Water from excavations shall be kept separate from storm water discharge associated with surface construction.

In the event that contaminated waters are encountered, the contractor is required to notify the department prior to discharging contaminated water. Comply with WDNR regulations regarding disposal of contaminated groundwater. Obtain additional permits, if required. Notify the Milwaukee Metropolitan Sewerage District for any discharge of contaminated water into the sewer system, and provide laboratory test results documenting contaminant concentrations.

**C.4. Surface Water Control**

Intercept and divert surface drainage away from the work sites by the use of dikes, curbwalls, ditches, sumps, or other means. Design surface drainage systems to prevent erosion either on or off the site. Control surface runoff to prevent entry of surface water into excavations and to prevent erosion either on or off the site. Remove drainage systems when no longer needed.

**C.5 Water Control in Excavations**

Use water control methods that are appropriate, as determined by the contractor, to permit conditions, ground conditions, construction operations, and requirements of these plans and special provisions. The methods shall involve removal of water accumulating within excavations from precipitation and groundwater infiltration, and may involve removal of water outside excavations by means such as the use of dewatering or pressure relief wells.

Water control methods shall minimize adverse effects of elevated or reduced water pressure on the work, the surrounding ground and adjacent facilities and structures. Design and operate the water control measures to prevent removal of in-situ materials (development of lost ground), or loosening or softening of subgrade soils within excavations.

Water control methods shall be capable of lowering and maintaining the free water and piezometric levels to an elevation at least 2 feet below excavation bottoms regardless of the water volume. The methods shall have sufficient capacity to accomplish this desired result allowing for normal variations in precipitation and soil and aquifer properties.

Control groundwater and surface water such that the construction of tunnels and shafts excavations, trenches and other structures can be performed without adverse effects of water on the facilities being constructed, including prevention of hydrostatic uplift pressures on the new facilities until construction has been adequately completed. If the water level cannot be maintained at the specified levels, contractor shall, at no additional cost to the department, control seepage of groundwater by whatever means are necessary to assure that there is no loss of ground by erosion or piping of fines with seepage through shoring or lagging into excavated areas and no instability of slopes due to seepage. Control water during periods when excavating, installing ground support systems, installing subgrade protection measures, placing concrete (except tremie concrete), placing pipe, and at such other times as is necessary for efficient and safe execution of the work.

If water enters the excavation in volumes that could adversely affect the performance of the work or has the potential to cause loss or damage to adjacent property or structures, take immediate steps to reduce or mitigate the water inflow.

Provide standby pumps and standby power supply where disruption of water control systems could allow water inflows to threaten the work or the safety of personnel.

**C.6 Monitoring of Groundwater Levels**

Monitor groundwater levels as necessary to evaluate the sufficiency of the water control system. A system of construction piezometers is required to evaluate the effectiveness of the water control system in fulfilling the requirements specified herein. Piezometers shall be of adequate numbers and in suitable arrangements and depths for determining the free water surface elevations and piezometric elevation over the area. A minimum of one piezometer per four dewatering wells or one piezometer per excavation location shall be installed with the dewatering system at locations and depths proposed by the contractor.

Piezometers shall be installed using direct rotary drilling methods with drilling fluid that does not impact the development of the piezometer and conforms to ASTM D5783. During drilling, soil samples shall be obtained at intervals of 2.5 feet or less using standard penetration tests in accordance to ASTM D1586. Piezometers shall be constructed and developed in accordance to ASTM D5092, with development a minimum of 24 hours after completion. The contractor's engineer shall determine the depth of the sensing zone for each piezometer based on observations of retained soil samples.

Make a minimum of one reading at each piezometer, per 24-hour period, 5 days per week during the period of dewatering activities (including dewatering by pumping seepage from sumps within shafts or other excavation areas) and one reading at each piezometer per week until the end of construction during periods of no dewatering.

**C.7 Dewatering Wells**

Obtain a site-specific dewatering discharge or construction site storm water discharge permit if the WDNR has specific concerns that are not addressed by other permits that might otherwise apply.

Obtain a WDNR permit for operation of any well or well system that has a combined pumping capacity of 70 gallons per minute or more (a high capacity extraction system). For purposes of permitting, a well is defined as any opening made in the ground where the depth of the opening is greater than its largest surface dimension and extends more than 10 feet below ground surface. The permit will require that wells be constructed, operated, and abandoned in accordance to Chapter NR 812, Wisconsin Administrative Code.

Keep dewatering influence zone to the minimum necessary for execution of the work. Obtain any additional geotechnical information necessary for design of a dewatering well system, including performing pump tests, grain size analyses, groundwater chemical analyses, and subsurface investigations. Design and operate wells so as to prevent removal of fine soils with seepage through backpack material and screens. Provide means by which

water discharge from each well can be measured and flow rates adjusted. Construct and operate wells in accordance to WDNR requirements. Monitor the rate of discharge from each well on a daily basis with an accuracy of at least 2 percent of the flow.

Wells shall be designed, installed and operated in a manner that will preclude removal of materials by the pumping operation (hereafter referred to as "piping of fines"). After installation, each well shall be individually pump-tested at maximum design flow to verify acceptability with respect to piping of fines (sediment mostly consisting of silt and sand) as measured using a centrifugal tester. Any well or wellpoint segment found to be causing piping of fines at a rate exceeding 2 parts per million (ppm) by volume during the individual pump-test at the maximum design flow shall be replaced in a manner acceptable to the engineer, and at no additional cost to the department. Each well shall be checked for sediment piping using a centrifugal tester immediately after installation and at least once per month during operation. Measure the sediment content of the total dewatering effluent using a centrifugal tester at least once every 30 days. If the sediment content of the total effluent is greater than 1 ppm, contractor shall identify and abandon wells that are producing excessive sediments and replace them. All sediment content tests shall be performed in the presence of the engineer.

**C.8 Ground Loss from Dewatering Operations**

Support any structure including, but not limited to, buildings, bridges, freeway surfaces, streets, and utilities, or portions of such structure, including footings, foundations, basements, walls or concrete driveways that become unstable or vulnerable to settlement due to removal or disturbance of groundwater. Cease excavation and other construction operations that result or have the potential to result in further settlement until corrective measures are implemented. Support shall include but not be limited to shoring; sheeting; bracing; underpinning; compaction grouting; driving piles; excavating, backfilling, and placing new structural concrete beneath or adjacent to the unstable structure; or other means necessary to rectify the particular problem involved.

The contractor shall bear the costs of all loss or damage arising from removal or disturbance of groundwater including, but not limited to claims for subsidence and loss of structure support that may occur in the prosecution of the work. If the contractor fails to correct the damage resulting from his operations, the engineer may deem the work to be unacceptable work as defined in standard spec 105.3.2.2.

**C.9 Treatment and Disposal of Water**

Discharge all water removed from the construction site through pipes or hoses. Do not convey water in open ditches or trenches. Discharge water in a manner that will not cause soil erosion at the discharge point. Discharge shall not cause sediment accumulation or flooding in any stream, storm sewer, or on adjacent properties.

Treat all water to remove suspended solids, oils, cement, bentonite, and other contaminants by use of settling basins, on-site treatment plant, or other means selected by the contractor. Design the treatment systems for the maximum discharge rates. Treatment systems shall

be capable of expansion if greater capacity becomes necessary during the course of the work. The contractor shall provide copies of all records required by the WDNR.

Obtain permission to use storm sewers or drains for water disposal purposes from the authority having jurisdiction. Protection of storm sewers and drains shall be in conformance with the Wisconsin Construction Site Best Management Practices Handbook, latest revision and the requirements by authority having jurisdiction. Any requirements and costs for such use shall be the responsibility of the contractor. Do not cause flooding by overloading or blocking the flow in the drainage facilities, and leave the facilities unrestricted and as clean as originally found. Document the condition of the drainage facilities prior to and subsequent to their use. The engineer may independently verify the condition of such facilities. Repair or restore any damage to facilities as a result of the contractor's operations as directed by the authority having jurisdiction, at the contractor's expense.

Should requirements of any permit be different than requirements herein, the more stringent requirements shall control.

Ventilate enclosures around wells and water discharge points to prevent the accumulation of combustible gas that may escape from solution in groundwater.

On completing the work, clean out and dispose of all sediments and residues in settling basins, treatment facilities, and the like. Dispose of sediments and residues in accordance to applicable regulations.

**C.10 Abandonment of Piezometers and Dewatering Wells**

Abandon the design phase piezometers and all piezometers and dewatering wells installed during construction in accordance to standard spec 204.3.3.3 and in accordance to NR 812 Wisconsin Administrative Code, whichever is more stringent.

**D Measurement**

The department will measure Control of Water as a lump sum unit of work, acceptably completed. The contractor is responsible for removing all surface and ground water regardless of the quantity during construction to accomplish the work.

**E Payment**

The department will pay for Control of Water at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.8098 | Control of Water | LS |

Payment for Control of Water is full compensation for, but not limited to complete dewatering system design, installation, monitoring, discharge, and all necessary incidental work as specified in this special provision.

## 375. Geotechnical Instrumentation, Item SPV.0105.8099.

### A Description

This special provision includes requirements to develop the geotechnical instrumentation plan, furnish, install, maintain and remove when applicable, the geotechnical instrumentation for the tunnel and working shafts of Storm Sewer Pipe between manholes Z2431, Z2623 and Z2683. The purpose of the instrumentation program is to monitor ground movements within and around the tunnel and shafts. The instrumentation program specified herein is not intended to be used to ensure the safety of the work.

### A.1 Personnel Qualifications

Technicians: A qualified technician shall be licensed surveyor registered in the State of Wisconsin and have a minimum of 5 years of experience in the installation of geotechnical instrumentation similar to those specified herein.

Instrumentation Engineer: The contractor shall hire a professional civil or geotechnical engineer or engineering geologist, with a minimum of 5 years of experience in the installation of instrumentation specified herein, and licensed in the State of Wisconsin.

### B Materials

**Protective Cover:** Protective covers shall be guard casings or valve boxes depending on installation location, as specified in this special provision. Each protective cover shall be 2 inches larger than the instrument within, or a minimum of 4 inches inside diameter. Guard casing shall consist of Schedule 40 steel pipe, or equal. Guard casing shall be of such length that it will have a minimum depth below ground surface of 2 feet, and a height above ground surface of 2 feet to 4 feet, or as instructed by the engineer. Guard casing shall have a bolting or screw-type cover that is free of sharp edges and burrs, and is easy to remove for monitoring. Valve boxes shall be cast iron or steel designed to resist traffic loading typical for roadway installation. Valve boxes shall be of such length to have a minimum depth below ground surface of 1.5 feet when installed flush with the ground surface. The valve box shall have a bolting cover.

**Inclinometers (INC):** Inclinometer casing shall be grooved plastic 2.75-inch OD casing that is compatible with the inclinometer being provided. The casing shall be complete with necessary rigid self-aligning couplings and end plugs. The inclinometer monitoring system shall include a probe, 100 feet of cable, cable relief, pulley assembly, cable hold, and readout. The inclinometer readout shall measure inclinations at any depth selected by the operator and shall digitally store, process and report the data (by display and downloadable digital files) as lateral movements from a stored baseline reading. The cable connecting the sensor and indicator shall have a stranded steel core to take the stress of pulling so as not to break any connectors or wires. The cable shall be jacketed with a waterproof material and marked externally at 1-foot intervals for accurate depth determination. The cable guide pulley shall mount to the top of the inclinometer casing.

**Utility Settlement Markers (UM):** Subsurface settlement markers for monitoring utility movement shall consist of a 0.75-inch solid rod or No. 6 steel reinforcing rod set within a 2-inch Schedule 80 PVC pipe casing. The upper end of the rod shall have a rounded head or cap set perpendicular to the rod axis. Equivalent types of subsurface settlement markers may be used subject to the engineer's approval.

**Ground Settlement Markers (GM):** Surface settlement markers in paved areas shall be hardened steel markers treated or coated to resist corrosion, with an exposed convex head having a minimum diameter of 1/2 inch and similar to surveyor's PK nails. Surface settlement markers in unpaved areas shall be a 2-inch by 2-inch by 18-inch long hardwood hub driven to grade.

## C Construction

### C.1 Submittals

#### C.1.1 General

Prepare and submit the qualifications, instrumentation plan and shop drawings at least 21 calendar days prior to start of instrumentation installation. The engineer will accept the submittal as submitted or return the submittal with requested revisions. Do not start any work until the engineer provides acceptance of qualifications and instrumentation plan and shop drawings. Acceptance of the submittals does not relieve the contractor of responsibility for successful completion of the tunnels.

#### C.1.3 Submittals for Approval

**Qualifications:** Submit qualifications of the technicians and the instrumentation engineer.

**Instrumentation Plan and Shop Drawings:** The instrumentation plan and shop drawings shall be prepared by the instrumentation engineer and shall bear the seal, signature and date of the instrumentation engineer. As a minimum, include the following:

a. Shop drawings detailing locations (coordinates), depths, types, details, and other pertinent information showing the installation details for each type of instrumentation required.
b. Shop drawings that indicate the locations of control points and benchmarks associated with surveys for monitoring geotechnical instrumentation.
c. Description of methods for installing and protecting all instruments.
d. Materials and mix portions for cement-bentonite or cement-lime grout for installing subsurface settlement markers and inclinometers.
e. Schedule of instrument installation and baseline related to significant activities or milestones in the overall project.
f. Manufacturer's literature describing installation, operation, and maintenance procedures for all instruments, materials, readout units, and accessories.
g. Submit permits and consents from authority having jurisdiction, if applicable, for drilling holes from ground surface and conducting monitoring activities.
h. Plans for geotechnical instrumentation to be installed at contractor's option.
i. Contingency plan when monitoring Threshold Limits are exceeded.

**As-built Plans:** Following installation of the instruments and prior to the start of underground construction, submit as-built drawings showing the exact installed location (coordinates and elevation), inclinometer's groove orientation relative to the shaft, the instrument identification number, the instrument type, the installation date and time, the heading station or portal or shaft excavation depth on the installation date, when applicable, and the anchor or tip elevation and instrument length, when applicable, and installed locations of control points and benchmarks associated with surveys for monitoring geotechnical instrumentation. Include details of installed instruments, accessories, and protective measures including all dimensions and materials used.

### C.1.3 Information Submittals

**Certificates:** Submit for each instrument to be installed, as applicable, a certificate issued by the instrument's manufacturer stating that the manufacturer has inspected and tested each instrument before it leaves the factory to confirm that the instrument is working correctly and has no defects or missing parts.

**Reports and Records:**

a. Drilling and installation logs for instrumentation installations prepared by the instrumentation engineer.
b. Submit copies of completed WDNR abandonment forms for subsurface settlement markers and inclinometers as soon as possible after instruments are abandoned.
c. Submit a pre-construction assessment report documenting pre-construction survey results.
d. Submit a post-construction assessment report at the end of construction.
e. Submit initial/baseline readings specified herein to the engineer, at least 15 days prior to the start of any construction activity within 50 feet of the tunnel alignment centerline or edge of the shafts or dewatering within 100 feet of the instrument.
f. Weekly monitoring report by the instrumentation engineer shall be submitted on a weekly basis as specified herein. Supply copies of field notes if requested. As a minimum, construction status (dewatering activity, excavation depth, tunnel progress etc.), monitoring data (with comparison to the baseline readings), interpreted results, exceedances and comments, and impact assessment to adjacent roadway/structure based on monitored movement shall be included in the weekly monitoring report.
g. The contractor shall submit monthly reports, prepared by the contractor's excavation support system design engineer, which include his/her field observation on performance of shaft excavation support systems and review of relevant instrumentation monitoring data.

### C.1.4 Acceptance

The engineer will evaluate the Submittals for Approval with the requirements of this special provision. Within 14 calendar days after receipt of the Submittals for Approval, The engineer will notify the contractor of the acceptance of the submittal, or if additional information and/or changes are required. Any unacceptable part of the Submittals for Approval will require resubmission. The contractor must resubmit the Submittals for

Approval for evaluation and review with the necessary changes or additional information provided. The engineer will provide a written notice of acceptance or rejection of contractor's resubmitted Submittals for Approval within 14 calendar days after its receipt.

After the engineer's acceptance of Submittals for Approval, no changes to the Submittals for Approval can be made without written consent of the engineer.

All Information Submittals should be submitted to the engineer. The engineer can reject the submittals which do not adequate detail, as required herein. The contractor shall resubmit the rejected submittals within 7 days upon the receipt of the engineer's rejection notice.

**C.2 General Requirement**

The contractor shall conduct preconstruction survey prior to start of any construction or dewatering activities. The pre-construction survey shall include the condition of the existing roadway, utilities, and any structures within the zone of influence defined herein. At the end of construction, the contractor shall perform post-construction assessment of the existing roadway, utilities, and any structures within the zone of influence. The post-construction condition shall be compared with the pre-construction condition.

The contractor shall develop the instrumentation plan based on the following requirements:

a. Monitoring shall be performed within tunnel and shaft zone of influence. Tunnel zone of influence shall be defined as a theoretical slope of 1.5H:1V from the spring lines of tunnel excavation. Shaft zone of influence shall be defined as a theoretical slope of 1H:1V from the bottom of shaft excavation.
b. INCs shall be installed at the following locations:
    i. One within the shaft zone of influence at Z2683.
    ii. One within the shaft zone of influence at Z2431.
    iii. One within the shaft zone of influence at Z2623.
    iv. One between tunnel and retaining wall R-40-467.
c. UMs shall be installed for all active utilities located within the defined zone of influence, greater than 18 inches in diameter, and deeper than 5 feet below ground surface to the crown.
d. GMs shall be installed at the following locations:
    i. Within 5 feet from edge of each shaft on four sides of the shaft
    ii. At 100-foot spacing along the tunnel centerline
    iii. Above the utilities within the zone of influence which do not require UM installation
    iv. One on the existing ramp of Greenfield Avenue to I-894/USH 45 northbound, at location immediately above the tunnel centerline.
    v. Immediately in front of retaining wall R-40-467
    vi. Adjacent to any existing structure which is located within the tunnel and shaft zone of influence as defined herein, and dewatering zone of influence as specified in the special provisions, article Control of Water.

## C.3 Installation

The contractor shall install instruments as per the approved submittals. The instrumentation engineer shall supervise and direct technicians and be responsible for instrument installation required. The instrumentation engineer shall be physically present at the installation sites to supervise the installations.

Geotechnical instrumentation shall be installed and baseline readings shall be completed:

a. Before commencing any control of water activity, for the instruments are located within the dewatering zone of influence.
b. Before installation of shaft excavation support systems, for the instruments within 50 feet from the edge of shaft.
c. Before excavation work for shafts and tunnels, for the instruments within 50 feet from the tunnel alignment centerline or edge of shaft.

The contractor shall locate conduits and underground utilities in all areas where borings are to be drilled and instruments installed. Instrument locations shall be modified, as approved by the instrumentation engineer, to avoid interference with the existing conduits and utilities. Repair damage to existing utilities resulting from instrument installations at no additional cost to the department.

All instruments shall be clearly marked, permanently labeled, and protected to avoid being obstructed or otherwise damaged by construction operations or the general public. Protective housing and box or vault covers shall be marked.

After installation of each instrument, survey the as-built location to define the vertical and lateral positions of the exposed parts.

Provide a protective cover for all instruments installed in boreholes from the ground surface. Maintain exposed parts of installed instruments as necessary to ensure their availability for use for the duration of the work. Replace, at no cost to the department, instrumentation in place that becomes damaged, inaccessible, or unreadable as a result of the contractor’s means and methods of construction or changes in the contractor's means and methods of construction that could have been anticipated by the contractor prior to installation. The locations of replacement instruments shall be jointly determined by the engineer and the contractor. Complete the repair or replacement as soon as practical.

The contractor shall abandon all instruments upon completion of the work.

## C.4 Tremie Grouting

Perform tremie grouting by pumping grout through a tremie pipe positioned 3 to 5 feet above the bottom of the space to be grouted. Keep the bottom end of the tremie pipe submerged in grout as the grout level is brought up to the ground surface. The density of the grout flowing from the space at the ground surface shall be the same as the density of the grout being placed. Allow the grout to set for a minimum 12-hour period before additional materials are placed on top of the grout. Top off any settling of grout.

**C.5 Installing Inclinometer**

Drilling method utilized for INC installation shall be hollow-stem augers per ASTM D6151. Drill borings for inclinometers using 6-inch minimum inside diameter casing and water or, where ground conditions permit, using drilling mud in a 6-inch minimum diameter borehole. During drilling, obtain soil samples at 2.5 foot intervals or less using standard penetration tests in accordance to ASTM D1586.

Install the inclinometer casing with an end plug and sufficiently taped at joints (to prevent intrusion of grout). Install the inclinometer casing extending at least 10 feet below bottom of planned shaft excavation. Orient the casing grooves as instructed by the instrumentation engineer. Grout the inclinometer casing in place. Place grout by tremie method, in accordance to section C.4 Tremie Grouting. If steel drill casing has been used to support the borehole, remove the drill casing in increments, and top off the grout level with each increment.

The grout shall consist of a cement-to-water ratio ranging from 2.5 to 1 for hard soil and 6.6 to 1 for soft soil by weight. The specific ratio to be used will be determined by the instrumentation engineer. The bentonite to cement ratio will be approximate 0.3 to 1, by weight, adjusted to produce grout with the consistency of heavy cream. Mix cement and water first. Add bentonite as necessary to achieve the specified consistency.

Provide the top of each inclinometer casing with a cap. The cap shall effectuate a seal to prevent intrusion of surface water but be easy to remove.

Perform a groove tracking test after the installation has been completed to ensure that the inclinometer casing is vertical and not twisted. Lower the inclinometer sensor to the bottom of the casing in all four possible orientations, verifying that on rising to the top of the casing the inclinometer orientation is unchanged.

**C.6 Utility Settlement Markers**

UMs shall be installed approximately 3 feet above the crown of the utility. Potholing methods shall be used to carefully advance a minimum 4-inch-diameter hole to the upper surface of the utility to be monitored for installation of a utility settlement marker. Temporary casing shall be set if necessary. Care shall be taken to prevent damage to the utility.

Potholing is defined as use of vacuum excavation or low pressure water jetting and vacuum excavation to advance holes with low risk of utility damage to confirm utility locations or to advance holes for grout pipes or geotechnical instrumentation to depths below utilities of concern.

A PVC casing shall be inserted to the bottom of the borehole. A 6-inch minimum thickness bentonite seal shall be placed at the bottom of the borehole to prevent annular backfill and surrounding soil from entering the PVC casing. The bentonite shall be hydrated with water prior to placement.

The annular space outside the PVC casing shall be backfilled with either coarse sand or grout. Sand shall be placed in maximum 1-foot lifts and tamped with a rod. Grout shall be placed by tremie method in accordance to section C.4 Tremie Grouting. Grout for subsurface settlement markers shall consist of cement and water, with the minimum amount of water necessary to allow pumping. Any temporary casing set in conjunction with potholing shall be withdrawn in a manner to prevent collapse of the borehole. After the annular space is filled, the PVC casing shall be flushed with clean water to remove any soil and grout. A steel rod or pipe with centralizers that is cut to the required length shall be set in firm contact with the top of the utility. A protective cover shall be installed. The installation shall conform to the details shown in the plans.

**C.7 Ground Settlement Markers**

The method of installation shall be the contractor's option; however, the marker shall be rigidly affixed so as not to move relative to the surface to which it is attached.

**C.8 Monitoring Instruments**

Horizontal and vertical survey accuracy shall be 1/8 inch or less.

The contractor shall take a minimum of two sets of initial readings. After initial readings are approved by the instrumentation engineer, the average from the initial readings shall be used to establish the baseline reading.

For shafts, monitor all instruments within shaft zone of influence as follows:

a. Monitor all instruments daily within 50 feet of the outer edge of shaft or within dewatering zone of influence, whichever zone is larger, beginning when shaft construction, or dewatering activity begins, whichever comes first.
b. Monitor daily or once per shift, whichever is more frequent during active excavation of shaft, tunnel launching, and tunnel break through.
c. Monitor twice per week during all other construction activities until backfill and removal of shaft excavation support systems.

For tunnels, monitor all instruments within tunnel zone of influence as follows:

a. Monitor twice daily or twice per shift, whichever is more frequent during active tunnel excavation beginning when tunnel excavation approaches within 50 feet of the station of the instrument location. Continue monitoring at the same frequency until excavation advances 100 feet beyond the station of the instrument location or the tunnel drive is completed, i.e. tunnel shield or tunnel boring machine completely enters the receiving shaft. The monitoring shall be performed at a maximum interval of 4 hours.
b. Upon completion of the tunnel drive, monitoring daily until contact grouting to fill exterior voids is complete.
c. Continue to monitor weekly until backfill and removal of shaft excavation support systems are completed.

The monitoring threshold limits for all instruments are established as follows:

| Facilities Monitoring | Threshold Limit Level 1 | Threshold Limit Level 2 |
|---|---|---|
| Pavement Settlement | 1 inch | 1.5 inch |
| Open Area Settlement | 1 inch | 2 inch |
| Underground Utilities | 0.75 inch | 1 inch |
| Inclinometer | 0.50 inch | 1 inch |
| Excavation Support System Deflection | 0.75 inch | 1.5 inch |

Use whatever means and methods are necessary to limit ground movements, settlements, and damage of utilities, structures and other facilities. These means and methods include, but are not limited to excavation support systems, tunneling methods, underpinning of vulnerable facilities, grouting and other forms of ground improvement.

**C.9 Actions to Mitigate Excess Ground Movements**

If movement of an instrument reaches the Threshold Limit Level 1, the contractor shall proceed with the approved contingency plan. The likely cause of the movement shall be identified and promptly discussed with the engineer and the contractor's excavation support system design engineer. The contractor shall increase the monitoring frequency where the Threshold Limit Level 1 was exceeded, as directed by the engineer or the contractor's excavation support system design engineer.

If movement of an instrument reaches the Threshold Limit Level 2, the contractor shall immediately report to the engineer and cease excavation or other construction operations that result in further movement until additional operational changes are made to reduce ground loss around excavation. The approved contingency plan shall be implemented immediately. The likely cause of the displacement shall be discussed with the engineer and the contractor's excavation support system design engineer when applicable. The contractor shall increase the monitoring frequency where the Threshold Limit Level 1 was exceeded, as directed by the engineer or the contractor's excavation support system design engineer. The contractor shall not resume the construction until the ground movement is stabilized, as determined by the instrumentation engineer. If the contractor has exhausted all measures in the approved contingency plan and is not able to stabilize the ground movement, the contractor shall submit a correction plan to the engineer. Upon the engineer's acceptance of the correction plan, the contractor shall implement the correction plan immediately.

The cost of actions required for complying with Threshold Limits and to repair any damage to adjacent facilities shall be borne by the contractor with no additional cost to the department.

**D Measurement**
The department will measure Geotechnical Instrumentation as a single lump sum unit of work, acceptably completed.

**E Payment**
The department will pay for the measured quantities or revised quantities if agreed to in advance of placement by the department, at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.8099 | Geotechnical Instrumentation | LS |

Payment for Geotechnical Instrumentation is full compensation for furnishing and installing each instrument which includes all materials, labor, tools and equipment necessary for providing submittals, furnishing materials, installation, testing, protection, maintenance, replacement or repair of damaged instruments, initial readings, subsequent monitoring, abandonment, and all other specified items of work for which no separate bid item is provided.

## 376. Timber Lagging, Item SPV.0110.4600.

**A Description**
Work under this item consists of furnishing, delivering, and installing all timber lagging for soldier pile and lagging walls. Perform work in accordance to pertinent parts of the standard specifications, the plans, and these special provisions.

**B Materials**
Use materials that conform to lumber as specified in standard spec 507 except that preservative treatments according to standard spec 507.2.2.6 are not required and untreated lumber may be used. Use Douglas fir or Southern pine construction grade rough-cut lumber with a minimum thickness of 3-inches. Where necessary provide certification that the timber conforms to the grade, species, and other specified requirements.

**C Construction**
Place timber lagging from the top-down in sufficiently small lifts immediately after excavation to prevent erosion of materials into excavation. Before placing lagging, smooth the soil face to create a contact surface for the lagging. Backfill and compact large voids behind the lagging. Maintain a minimal gap between each vertically adjacent board for drainage between adjacent lagging sections. Never place lagging in tight contact to adjacent lagging.

**D Measurement**
The department will not measure Timber Lagging. The department will use pay plan quantity according to the Pay Plan Quantity article.

**E Payment**

The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0110.4600 | Timber Lagging | MBM |

Payment is full compensation for Timber Lagging; for furnishing, framing, installing, and the timber lagging.

## 377. Vibration Monitoring, Item SPV.0135.0001.

**A Description**

This special provision describes developing a vibration monitoring plan, deploying seismographs for continuous monitoring and recording, documentation, and reporting.

**B (Vacant)**

**C Construction**

**C.1 General**

Vibration Monitoring establishes vibration recordings at the closest affected locations beginning the first day of operations for various vibration inducing activities identified herein and lasting the entire duration of said activities unless monitored readings are sufficiently below nuisance limits in Figure 1 and engineer determines that continued monitoring will be at the contractor's discretion without further payment.

**C.2 Equipment**

Utilize a seismograph meeting the requirements of Wisconsin Department of Safety and Professional Services SPS307.43. Utilize monitoring equipment with an instantaneous alert notification system that consists of a text message or an e-mail alert message automatically sent anytime the nuisance limits in Figure 1 are exceeded.

**C.3 Preconstruction Survey**

The engineer will conduct preconstruction surveys of structures that may be potentially affected by vibration prior to any work. The engineer will visually inspect and record all existing defects in the structures before construction. Photographs or video may be used to assist in documentation.

The contractor may conduct and document pre-construction surveys of any additional nearby buildings or structures not identified by the engineer at no additional cost. Provide results to engineer prior to construction. Any damage resulting from excessive vibration-causing operations or claims of damage during construction is the responsibility of the contractor to resolve.

**C.4 Monitoring Plan**
Submit a monitoring plan that includes the following:

- Location of each vibration-inducing activity to be monitored.
- Locations at which the approved seismographs will be placed.
- Anticipated vibration levels at the closest building(s) or other sensitive facility during the various activities.
- Anticipated monitoring duration for each monitoring location.
- Maximum allowable vibration limits.
- Mitigation plan to reduce potentially excessive vibration levels to acceptable limits.

Obtain the engineer's acceptance seven calendar days before any vibration-inducing activity for the project.

**C.5 Monitoring and Recording**
Monitor the following operations:

- Bridge and sign bridge pile driving or bridge demolition.
- Sheet pile installation and removal.
- MSE wall compaction.
- Asphalt compaction.
- Pavement breaking.
- All compaction activities utilizing large vibratory rollers.
- Any other activities that may cause vibration damage to adjacent buildings, structures, or utilities.

Ensure that a qualified person operates and continuously monitors the vibration monitoring equipment. If any vibration levels exceed the nuisance levels shown, immediately halt the vibration-inducing work, and notify the engineer.

Monitor between the construction vibration source and the closest structure or other sensitive facility subject to vibration damage, and as close as practical to the subject structure or facility. Monitor vibration levels in accordance to Figure 1 and SPS 307.43.

Compare the measured peak particle velocity and frequency data to the nuisance limits specified in Figure 1. Record peak particle velocity and frequency in three mutually perpendicular directions.

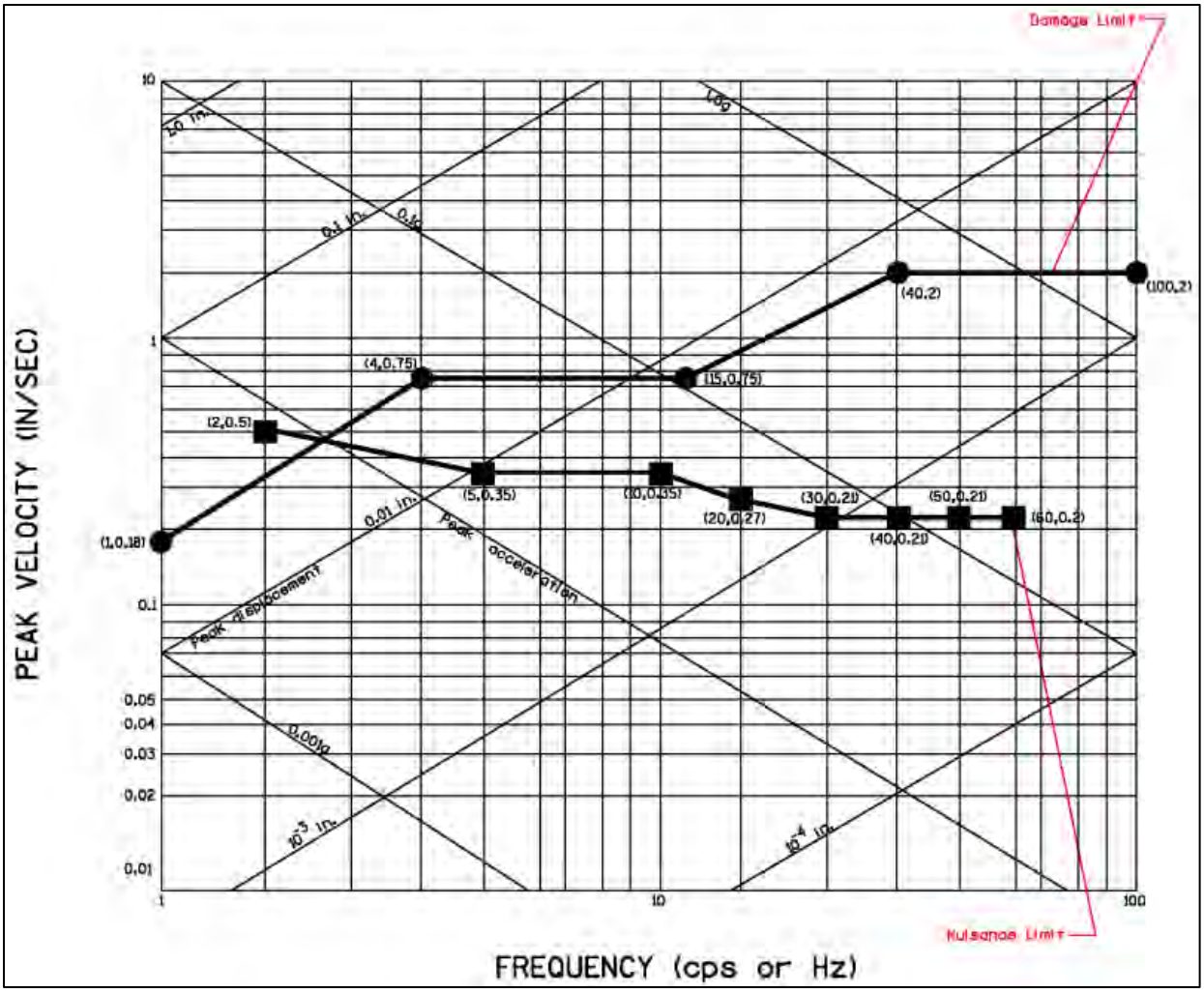


Figure 1: Amplitude of Vertical Vibrations

**C.6 Reporting**

Furnish a weekly bound report of data recorded at each location to the engineer by 4:00 PM CST every Friday. Additionally, provide a separate daily report documenting any work that was halted prior to the next vibration-causing workday. Include the following in both reports:

- Date vibration monitoring operations began for each location with an associated compilation of total days currently monitored at each site.
- Identification of vibration inducing activities monitored each day at each location.
- Serial number of vibration monitoring instrument used and record of latest calibration.
- Description of contractor's equipment.
- Name of qualified observer and interpreter.
- Distance and direction of recording station from vibration source.
- Surficial material type at recording station.
- Principal frequency and particle velocity in each component direction.

- Copy of records of seismograph readings, dated and signed by the person qualified to perform vibration monitoring.
- Contractor documentation of any operational changes necessary to reduce vibration levels below nuisance levels.

**D Measurement**
The department will measure Vibration Monitoring by months, or partial months where applicable, for each seismograph monitoring site acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV. 0135.0001 | Vibration Monitoring | MON |

Payment of the item Vibration Monitoring is full compensation for providing, setting up and removal of recording unit, an approved vibration monitoring plan, continuous monitoring and recording vibrations, and reporting. No payment for Vibration Monitoring will be paid for without agreement on recommended locations.

## 378. Longitudinal Grooving Bridge Deck, Item SPV.0165.4700.

**A Description**
Provide longitudinal deck grooves parallel to the centerline of the roadway prior to opening the bridge to traffic as directed by the engineer.

**B Materials**
Use a grooving machine containing blades mounted on a multi-blade arbor on a self-propelled machine built for grooving hardened concrete surfaces.

Use a grooving machine with a depth control device that detects variations in the deck surface and adjusts the cutting head height to maintain a specified depth of groove.

Equip the grooving machine with a guide device to control multi-pass alignment.

**C Construction**
Groove the pavement longitudinally without damaging the concrete deck surface.

Complete a longitudinal grooving operation that results in a uniformly grooved deck surface.

Cut grooves continuously across the deck width to within 18 inches of the barrier rail, curb line, or median divider. If metal floor drains extend more than 18 inches from the barrier rail, curb line, or median divider, all grooves on the bridge deck surface are to end within 6 inches of the floor drain perimeter.

At skewed metal edged expansion joints in the bridge deck surface, end all grooves on the bridge deck surface within 6 inches of the joint leaving no ungrooved surface adjacent to each side of the joint greater than 6 inches in width on the deck side of the expansion joints.

Produce grooves that are continuous across construction joints or other joints in the concrete deck surface less than ½-inch wide.

Construct longitudinal grooves with the following criteria:

| Width (In) | Depth (In) | Spacing C-C (In) | Width Tolerance (In) | Depth Tolerance (In) | Spacing Tolerance (In) |
|---|---|---|---|---|---|
| 1/8 | 3/16 | 3/4 | 0 to 1/16 | ± 1/16 | ± 1/16 |

Collect, remove and dispose of solid material residue and liquid waste resulting from grooving operations by vacuuming in a manner satisfactory to the engineer.

**D Measurement**
The department will not measure Longitudinal Grooving Bridge Deck. The department will use pay plan quantity according to the Pay Plan Quantity article.

**E Payment**
The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0165.4700 | Longitudinal Grooving Bridge Deck | SF |

Payment is full compensation for providing the required machinery and operators; for grooving, for collecting, removing and properly disposing of all waste materials.
SEF Rev. 13_0812

## 379. Wall Concrete Panel Mechanically Stabilized Earth LRFD/QMP, Item SPV.0165.4710.

**A Description**
This special provision describes designing, furnishing materials and erecting a permanent earth retention system in accordance to the lines, dimension, elevations and details as shown on the plans and provided in the contract. The design life of the mechanically stabilized earth (MSE) wall and all wall components shall be 75 years minimum.

This special provision describes the quality management program (QMP) for MSE walls. A quality management program is defined as all activities, including process control, inspection, sampling and testing, and necessary adjustments in the process that are related to the construction of the MSE wall, which meets all the requirements of this provision.

This special provision describes contractor quality control (QC) sampling and testing for backfill density testing, compaction, documenting those results, and documenting related production and placement process changes. This special provision also describes department quality verification (QV), independent assurance (IA), and dispute resolution.

Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes sampling and testing procedures. The contractor may obtain the CMM from the department's web site at: http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/rdwy/cmm.aspx

## B Materials

### B.1 Proprietary Mechanically Stabilized Earth Concrete Panel Wall Systems

The supplied wall system must be from the department's approved list of Concrete Panel Mechanically Stabilized Earth Wall systems (Concrete Panel MSE Walls).

Proprietary wall systems may be used for this work, but must conform to the requirements of this specification and be pre-approved for use by the department's Bureau of Structures, Structures Design Section. The department maintains a list of pre-approved Concrete Panel Mechanically Stabilized Earth Wall systems. To be eligible for use on this project, a system must have been pre-approved and added to that list prior to the bid opening date. The name of the pre-approved proprietary wall system selected shall be furnished to the engineer within 25 days after the award of contract. The location of the plant manufacturing the concrete panels shall be furnished to the engineer at least 14 days prior to the start of panel production.

To receive pre-approval, the retaining wall system must comply with all pertinent requirements of this provision. Applications for pre-approval may be submitted at any time. Applications must be prepared in accordance to the requirements of Chapter 14 of the department's LRFD Bridge Manual. Information and assistance with the pre-approval process can be obtained by contacting the Structures Design Section in Room 601 of the Hill Farms State Transportation Building in Madison or by calling (608) 266-8494.

### B.2 Design Requirements

It is the responsibility of the contractor to supply a design and supporting documentation as required by this special provision, for review by the department, to show the proposed wall design is in compliance with the design specifications. Four copies of the following shall be submitted to the engineer for review and acceptance no later than 60 days from the date of notification to proceed with the project.

The plans and shop drawings shall be prepared on reproducible sheets 11 inch x 17 inch, including borders. Each sheet shall have a title block in the lower right corner. The title block shall include the project identification number and structure number. Design calculations and notes shall be on 8 ½ inch x 11 inch sheets, and shall contain the project identification number, name or designation of the wall, date of preparation, initials of designer and checker, and page number at the top of the page. All plans, shop drawings,

and calculations shall be signed, sealed and dated by a professional engineer licensed in the State of Wisconsin.

The design of the Concrete Panel MSE wall shall be in compliance with the *AASHTO LRFD Bridge Design Specifications 5th Edition 2010*, (AASHTO LRFD) with latest interim specifications for Mechanically Stabilized Earth Walls, WisDOT's current *Standard Specifications for Highway and Structure Construction* (Standard Specifications), Chapter 14 of the WisDOT LRFD Bridge Manual and standard engineering design procedures as determined by the department. Loads, load combinations, load and resistance factors shall be as specified in AASHTO LRFD Section 11. The associated resistance factors shall be defined in accordance to Table11.5.6-1 LRFD.

Design and construct the walls in accordance to the lines, grades, heights and dimensions shown on the plans, as herein specified, and as directed by the engineer. Where walls or wall sections intersect with an included angle of 130 degrees or less, a vertical corner element separate from the standard panel face shall abut and interact with the opposing standard panels. The corner element shall have ground reinforcement connected specifically to that panel and shall be designed to preclude lateral spread of the intersecting panels. If the wall is installed in front of a bridge abutment or wing, it shall also be designed to resist the applied abutment/bridge lateral forces specified on the contract plans.

Walls parallel to supporting highway traffic shall be designed for the effects of highway surcharge loading equivalent of 2 feet soil surcharge weight or 240 psf. The design shall also consider the traffic barrier impact where applicable. Walls that do not carry highway traffic shall be designed for a live load surcharge of 100 psf in accordance to Chapter 14 of the WisDOT LRFD Bridge Manual or as stated on the plans.

A maximum value of the angle of internal friction of the wall backfill material used for design shall be assumed to be 30 degrees without a certified report of tests. If a certified report of tests yields an angle of internal friction greater than 30 degrees, the larger test value may be used for design, up to a maximum value of 36 degrees.

An external stability check at critical wall stations showing Capacity Demand Ratios (CDR) for sliding, eccentricity, and bearing checks is performed by the department and are provided on the wall plans. If the contractor utilizes an angle of internal friction greater than 30 degrees for the design, external stability checks at critical wall stations showing Capacity Demand Ratios (CDR) for sliding, eccentricity, and bearing checks are required to be analyzed by the contractor.

The design of the Concrete Panel Mechanically Stabilized Earth Wall by the contractor shall consider the internal and compound stability of the wall mass in accordance to AASHTO LRFD 11.10.6. The internal stability shall include soil reinforcement pullout, soil reinforcement rupture, and panel-reinforcement connection failure at each soil reinforcement level. The design shall be performed using the Simplified Method or

Coherent Gravity Method. Calculations for factored stresses and resistances shall be based upon assumed conditions at the end of the design life. Compound stability shall be computed for the applicable strength limits.

Facing panels shall meet the design requirements of AASHTO LRFD 11.10.2.3. The Facing panels shall also be designed to resist compaction stresses that occur during the wall erection. The minimum thickness of the Facing panel shall be 5.5 inches. The surface area of a standard single panel cannot exceed 60 square feet. The maximum height of a standard panel shall be 5 feet. The top and bottom panels may exceed 5 foot in height based on site topography subject to the approval by the Structures Design Section. The design of the steel reinforcement within the panels shall be based on one-way bending action. Design the wall panels and joints between panels to accommodate a maximum differential settlement of 1 foot over a 100-foot length, unless the plans indicate other.

The minimum length of soil reinforcement measured from the back face of the wall shall be equal to 0.7 times the wall height or as shown on the plan. In no case shall this length be less than 8 feet. The soil reinforcement length shall be the same from the bottom to the top of the wall. The soil reinforcement shall extend a minimum of 3.0 feet beyond the theoretical failure plane in all cases. The maximum vertical spacing of soil reinforcement layers shall be 31 inches. The uppermost layer of the reinforcement shall be located between 6 inches and 18 inches below the bottom of an overlying slab, footing or top of the wall. The upper layers of the soil reinforcement shall also be checked to verify that they have sufficient tensile resistance against traffic barrier impact where applicable.

All soil reinforcement steel required for the reinforced soil zone shall be connected to the face panels. The reinforcement and the reinforcement/facing connection strength shall be designed to resist maximum factored reinforcement loads in accordance to AASHTO LRFD Section 11.10.6. Facing connection strength shall be defined as the resistance factor times the failure load, or the load at 0.5 inch deformation times 0.9, whichever is less. The nominal long term design strength in steel reinforcement and connections shall be based upon assumed conditions at the end of the design life.

Soil reinforcement shall be prefabricated into single or multiple elements before galvanizing. Soil reinforcement shall be fabricated or designed to avoid piling, drainage structures or other obstacles in the fill without field modifications. Cutting or altering of the basic structural section of either the strip or grid at the site is prohibited unless approved by the Structures Design Section. A minimum clearance of 3” shall be maintained between any obstruction and reinforcement unless otherwise approved by the Structures Design Section. Splicing steel reinforcement is not allowed, unless approved by the Structures Design Section.

MSE facing panels shall be installed on concrete leveling pads. The minimum cross section of the leveling pad shall be 6-inches deep by 1-foot wide. Potential depth of frost penetration at the wall location shall not be considered in designing the wall for depth of leveling pad.

Submit the following to the engineer for review: complete design calculations, explanatory notes, supporting materials, specifications, and detailed plans and shop drawings for the proposed wall system. Sample analyses and hand output shall be submitted to verify the output by the software. The design calculations and notes shall clearly indicate the Capacity to Demand Ratios (CDR) for all internal stabilities as defined in AASHTO LRFD.

The wall submittal package shall be submitted electronically to the engineer and Structures Design Section. Submit all required information no later than 30 days prior to beginning construction of the wall. The detailed plans and shop drawings shall include all details, dimensions, quantities and cross-sections necessary to construct the walls.

**B.3 Wall System Components**

Materials furnished for wall system components under this contract shall conform to the requirements of this specification. All certifications related to material and components of the wall systems specified in this subsection shall be submitted to the engineer.

**B.3.1 General**

The walls shall have modular precast concrete face panels produced by a wet cast process, and have cast-in-place concrete pads or footings. The concrete panels shall have a minimum strength of 4000 psi at 28 days. The concrete for the panels shall be air entrained, with an air content of 6% +/- 1.5%. All materials for the concrete mixture for the panels shall meet the requirements of standard spec 501. The panel edges shall be configured so as to conceal the joints. The detail shall be a shiplap, tongue and groove or other detail adequate to prevent vandalism or ultraviolet light damage to the backside of the wall joint covering. Joints between panels shall be no more than 0.75 inch. Use full wall height slip joints at points of differential settlement when detailed on the plan. Horizontal joints must be provided with a compressible bearing material to prevent concrete to concrete contact.

A minimum of two bearing pads shall be used per panel. The allowable bearing stress shall not exceed 900 psi. The bearing pads shall be preformed EPDM rubber conforming to ASTM D-2000, Grade 2, Type A, Class A with a minimum Durometer Hardness of 80, or high- density polyethylene pads with a minimum density of 0.034 $lb/in^3$ in accordance to ASTM 1505.

An 18-inch wide geotextile shall be used on the backface of the wall panels to cover all panel joints. The geotextile shall meet the physical requirements stated in standard spec 645.2.4 for Geotextile Fabric, Type DF, Schedule B, except that the grab tensile strength shall be a minimum of 180 pounds in both the machine and cross-machine directions. The geotextile shall be attached with a standard construction adhesive suitable for use on concrete surfaces and cold temperatures. The adhesive shall be applied to the panels, not to the geotextile.

When Alternate Wall Backfill Type B (Coarse Aggregate No.1) is used in the reinforced zone as backfill, as required for construction during freezing weather, a geotextile shall be placed to separate the Alternate Wall Backfill Type B from the retained soil. If the wall is constructed in stages where portions of wall backfill consist of Wall Backfill Type A and adjacent portions consist of Alternate Wall Backfill Type B (Coarse Aggregate No.1), a geotextile must also be placed at the interface of and between the two different backfill materials for the entire height of the backfill to prevent migration of finer soil. The geotextile shall also be placed on top of the Alternate Wall Backfill Type B to provide separation from the fill above the wall reinforced zone. Adjoining sections of geotextile should be overlapped by a minimum of 12 in. The geotextile shall meet the physical requirements stated in standard spec 645.2.4 for Geotextile Fabric, Type DF, Schedule B. Where geotextile is used it cannot be placed directly on top of wall reinforcement and it must be placed at one-half of the backfill lift thickness over the reinforcement.

Do not alternate wall backfill types along the height of the wall. Sloping of the Alternate Wall Backfill Type B from the top of the reinforced earth zone down to the leveling pad is acceptable as required for staging and as approved by the engineer. The section C.2 compaction requirements must be satisfied for this interim condition. Temporary shoring return walls, such as wire face MSE walls, are acceptable as approved by the engineer.

All steel portions of the wall system exposed to earth shall be galvanized. All soil reinforcement and attachment devices shall be carefully inspected to ensure they are true size and free from defects that may impair the strength and durability.

For cast in place sections of cap and coping, use poured concrete masonry Grade A, A-FA, A-S, A-T, A-IS or A-IP concrete conforming to standard specification standard spec 501 as modified in standard specification standard spec 716. Provide QMP for cast in place cap and coping concrete as specified in standard specification standard spec 716, Class II Concrete.

Use a wall leveling pad that consists of poured concrete masonry, Grade A, A-FA, A-S, A-T, A-IS or A-IP concrete conforming to standard specification standard spec 501 as modified in standard specification standard spec 716. Provide QMP for leveling pad concrete as specified in standard specification standard spec 716, Class III Concrete.

The minimum embedment to the top of the leveling pad shall be 1 foot 6 inches or as given on the plan or given in AASHTO LRFD 11.10.2.2 whichever is greater. Step the leveling pad to follow the general slope of the ground line. The leveling pad's steps shall keep the bottom of the wall within one half the panel heights of the minimum embedment i.e. the minimum embedment plus up to one half the height of one panel. Additional embedment may be detailed by the contractor, but will not be measured for payment.

**B.3.2 Backfill**

Furnish and place backfill for mechanically stabilized earth concrete panel walls as shown on the plans and as hereinafter provided. The same backfill material must be used for the entire wall height, from the leveling pad to top of finished reinforced earth zone, for each

stage of wall construction. For the purposes of this special provision, a stage is defined as constructing a full-height portion of wall along the wall alignment, not staging wall construction up the height of the wall. Horizontal changes in backfill strata up the height of the wall will not be allowed.

In addition to gradation requirements hereinafter provided, backfill material within the reinforced zone shall meet the following requirements.

| Test | Method | Value |
|---|---|---|
| pH | AASHTO T-289 | 5 – 10.0 |
| Sulfate content | AASHTO T-290 | 200 ppm max. |
| Chloride content | AASHTO T-291 | 100 ppm max. |
| Electrical Resistivity | AASHTO T-288 | 3000 ohm/cm min. |
| Organic Content | AASHTO T-267 | 1.0% max. |
| Angle of Internal Friction | AASHTO T-236* | 30 degrees min. (At 95.0% of maximum density and optimum moisture, per AASHTO T99, or as modified by C.2.) |

*If the amount of P-4 material is greater than 60%, use AASHTO 236 with a standard-size shear box. Test results of this method may allow the use of larger angles of internal friction, up to the maximum allowed by this specification.

If the amount of P-4 material is less than or equal to 60%, two options are available to determine the angle of internal friction. The first method is to perform a fractured faces count, per ASTM 5821, on the R-4 material. If more than 90% of the material is fractured on one face and more than 50% is fractured on two faces, the material meets the specifications and the angle of internal friction can be assumed to be 30 degrees. The second method allows testing all P-1" material, as per AASHTO T-236, with a large shear box. Test results of this second method may allow the use of larger angles of internal friction, up to the maximum allowed by this specification.

Prior to placement of the backfill, obtain and furnish to the engineer a certified report of test results that the backfill material complies with the requirements of this specification.

Specify the method used to determine the angle of internal friction. This certified report of test shall be less than 6 months old. Tests will be performed by a certified independent laboratory. In addition, when backfill characteristics and/or sources change, provide a certified report of tests for the new backfill material. Additional certified reports of tests (except Angle of Internal Friction test), are also required. These additional backfill tests may be completed at the time of material production or material placement, with concurrence of the engineer. If this additional testing is completed at the time of material production, complete testing for every 2000 cubic yards of backfill or portion thereof. If

this additional testing is completed at the time of material placement, complete testing for every 2000 cubic yards of backfill, or portion thereof, used per wall. All certified report of test results shall be less than 6 months old and performed by a certified independent laboratory.

**B.3.2.1 Wall Backfill Type A**

For typical wall backfill, provide and use backfill that consists of natural sand or a mixture of sand with gravel, crushed gravel or crushed stone. It shall not contain recycled or milled asphalt, recycled concrete, foundry sand, bottom ash, blast furnace slag or other potentially corrosive material.

Provide material conforming to the following gradation requirements as per AASHTO T27.

| **Sieve Size** | **Percentage by Weight Passing** |
|---|---|
| 1 inch | 100 |
| No. 40 | 0 - 60 |
| No. 200 | 0 - 15 |

The material shall have a liquid limit not greater than 25, as per AASHTO T89, and a plasticity index not greater than 6, as per AASHTO T90. Provide the percent by weight, passing the #4 sieve.

**B.3.2.2 Wall Backfill Type B**

If the project schedule is such that the wall must be constructed during freezing weather, the engineer may allow use of alternate wall backfill materials. The alternate wall backfill materials will only be utilized when approved by the engineer. Alternate Wall Backfill, Type B shall comply with the requirements for Coarse Aggregate No.1 as given in 501.2.5.4.4 of the Standard Specifications. The alternate wall backfill must consist of crushed stone or crushed gravel.

For Alternate Wall Backfill, Type B, provide material conforming to the following gradation requirements as per WisDOT Standard Specifications for Highway and Structure Construction.

| Sieve Size | Percentage by Weight Passing |
|---|---|
| | Size No. 1 Coarse Aggregate, Standard spec 501.2.5.4.4 |
| 1” | 100 |
| ¾” | 90-100 |
| 3/8” | 20-55 |
| #4 | 0-10 |
| #8 | 0-5 |

## C Construction

### C.1 Excavation and Backfill

Excavation will encompass preparing the leveling pad foundation and the area below the reinforcing strips in accordance to standard spec 206. The volume of excavation covered is limited to the width of the reinforced mass and to the depth of the leveling pad unless shown or noted otherwise on the plan. At the end of each working day, provide good temporary drainage such that the backfill shall not become contaminated with run-off soil or water if it should rain. Do not stockpile or store materials or large equipment within 10 feet of the back of the wall.

**C.2 Compaction** Compact all backfill behind the wall as specified in standard spec 207.3.6. Compact the backfill to 95.0% of maximum dry density as determined by AASHTO T-99 (modified to compute densities to the nearest 0.1 pcf), or as modified as follows. If the gradation of the granular backfill is such that the P-200 material is less than 7% and the P-40 is less than 30%, a one-point Proctor test can be conducted in place of the 5-point Proctor. To complete this one-point test, compact the sample at a moisture content of 6%, then compute the actual (as-tested) sample moisture after completion of the test. Use Method B or D, and perform this test without removing oversize particles and without correction for coarse particles, as per AASHTO T224. The one-point as-tested moisture content represents the optimum moisture, and the measured one-point density represents the maximum wet density of the material. From these values, the maximum dry density can be computed.

If the engineer allows and approves use of alternate wall backfill material, the compaction of Alternate Wall Backfill Type B (Coarse Aggregate No.1) should be performed with at least three passes of a vibratory compactor in two mutually perpendicular directions (at least 6 passes total), such that with additional compactive effort, no further densification is obtained as visually determined by the engineer. If additional densification is observed after three passes in the two directions, then the material must be re-compacted until no further visual densification is observed. The initial three passes of the compactor must be in the direction parallel to the wall alignment followed by the three passes in the direction perpendicular to the wall alignment. Density testing is not required for Alternate Wall Backfill Type B.

Ensure adequate moisture is present in the backfill during placement and compaction to prevent segregation and to help achieve compaction.

Compaction of backfill within 3 feet of the back face of the wall should be accomplished using lightweight compaction devices. Use of heavy compaction equipment or vehicles should be avoided within 3 feet of the panels.

Place and compact the MSE backfill to the level of the next higher layer of MSE reinforcement before placing the MSE reinforcement or connecting it to the wall facing. The MSE reinforcement shall lay horizontally on the top of the most recently placed and compacted layer of MSE backfill. Bending of MSE reinforcement that result in a kink in

the reinforcement shall not be allowed. If skewing of the reinforcement is required due to obstructions in the reinforced fill, the maximum skew angle shall not exceed 15 degrees from the normal position unless a greater angle is shown on the plans. The adequacy of the skewed reinforcement in such a case shall be addressed by supporting calculations.

**C.3 Panel Tolerances**

As backfill material is placed behind a panel, maintain the panel in its proper inclined position according to the supplier specifications and as approved by the engineer. The supplier shall specify the back batter so that the final position of the wall is vertical. Vertical tolerances and horizontal alignment tolerances shall not exceed ¾-inch when measured along a 10-foot straight edge. The maximum allowable offset in any panel joint shall be ¾-inch. The overall vertical tolerance of the wall (plumbness from top to bottom) shall not exceed ½-inch per 10 feet of wall height. Erect the precast face panels to ensure that they are located within 1 inch from the contract plan offset at any location to ensure proper wall location at the top of the wall. Provide a ¾-inch joint separation between all adjacent face panels to prevent direct concrete-to-concrete contact. Maintain this gap by the use of bearing pads and/or alignment pins. Failure to meet this tolerance shall cause the engineer to require the contractor to disassemble and re-erect the affected portions of the wall. In addition, imperfect molding, honeycombing, cracking or severe chipping of panels shall be cause of panel rejection.

**C4 Quality Management Program**

**C.4.1 Quality Control Plan**

Submit a comprehensive written quality control plan to the engineer at or before the pre-construction meeting. Do not perform MSE wall construction work before the engineer reviews and accepts the plan. Construct the project as the plan provides.

Do not change the quality control plan without the engineer's review and acceptance. Update the plan with changes as they become effective. Provide a current copy of the plan to the engineer and post in the contractor's laboratory as changes are adopted. Ensure that the plan provides the following elements:

- An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of QC personnel.
- The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication process that will be used, and action time frames.
- A list of source locations, section and quarter descriptions, for all aggregate materials requiring QC testing.
- Descriptions of stockpiling and hauling methods.
- An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.
- Location of the QC laboratory, retained sample storage, and other documentation.
- A summary of the locations and calculated quantities to be tested under this provision.

**C.4.2 Quality Control Personnel**

Perform the quality control sampling, testing, and documentation required under this provision using HTCP certified technicians. Have a HTCP Level I Grading Technician, Level I Aggregate Technician, or Assistant Certified Aggregate Technician (ACT) present at the each grading site during all wall backfill placement, compaction, and nuclear testing activities. Have a HTCP Level I Nuclear Density Technician or Assistant Certified Nuclear Density Technician (ACT) perform field density and field moisture content testing. The HTCP Level I Grading Technician, Level I Aggregate Technician, or Assistant Certified Aggregate Technician (ACT) must also be present to document and confirm the required number of passes of the compaction equipment for the Alternate Wall Backfill Type B during wall backfill placement and compaction activities.

If an Assistant Certified Technician (ACT) is performing sampling or testing, a certified technician must coordinate and take responsibility for the work an ACT performs. Have a certified technician ensure that all sampling and testing is performed correctly, analyze test results, and post resulting data. No more than one ACT can work under a single certified technician.

**C.4.3 Equipment**

Furnish the necessary equipment and supplies for performing quality control testing. Ensure that all testing equipment conforms to the equipment specifications applicable to the required testing methods. The engineer may inspect the measuring and testing devices to confirm both calibration and condition. Calibrate all testing equipment according to the CMM and maintain a calibration record at the laboratory.

Furnish nuclear gauges from the department's approved product list at http://www.atwoodsystems.com/materials Ensure that the gauge manufacturer or an approved calibration service calibrates the gauge the same calendar year it is used on the project. Retain a copy of the calibration certificate with the gauge.

Conform to ASTM D 6938 and CMM 8.15 for density testing and gauge monitoring methods. Perform nuclear gauge measurements using gamma radiation in the backscatter or direct transmission position. Perform each test for 4 minutes of nuclear gauge count time.

Split each Proctor sample and identify so as to provide comparison with the department's test results. Unless the engineer directs otherwise, retain the QC split samples for 14 calendar days and promptly deliver the department's split samples to the department

**C.4.4 Quality Control (QC) Testing**

Perform compaction testing on the backfill. Conform to CMM 8.15 for testing and gauge monitoring methods. Conduct density testing at a minimum frequency of 1 test per 150 cubic yards of backfill, or major portion thereof. A minimum of one test for every lift is required. Deliver documentation of all compaction testing results to the engineer at the time of testing. Density testing is not required for Alternate Wall Backfill Type B.

Perform 1 gradation test every 750 cubic yards of fill and one 5-point Proctor test (or as modified in C.2) every 2000 cubic yards of fill. Provide the region split samples of both within 72 hours of sampling, at the region laboratory. Test sites shall be selected using ASTM Method D3665. Provide Proctor test results to the engineer within 48 hours of sampling. Provide gradation test results to the engineer within 24 hours of sampling.

Observe the compaction and densification process for the Alternate Wall Backfill Type B. The material must be compacted using the minimum number of passes of the compaction equipment until no further densification is obtained as visually determined. Provide documentation that the compaction met the required number of passes of the compaction equipment for the Alternate Wall Backfill Type B.

### C.4.5 Department Testing

#### C.4.5.1 General

(1) The department will conduct verification testing to validate the quality of the product and independent assurance testing to evaluate the sampling and testing. The department will provide the contractor with a listing of names and telephone numbers of all QV and IA personnel for the project, and provide test results to the contractor within 2 business days after the department obtains the sample.

#### C.4.5.2 Quality Verification (QV) Testing

(1) The department will have an HTCP technician, or ACT working under a certified technician, perform QV sampling and testing. Department verification testing personnel must meet the same certification level requirements specified in C.4.2 for contractor testing personnel for each test result being verified. The department will notify the contractor before sampling so the contractor can observe QV sampling.

(2) The department will conduct QV tests at the minimum frequency of 30% of the required contractor density, Proctor and gradation tests.

(3) The department will locate density tests and gradation samples randomly, at locations independent of the contractor's QC work. The department will split each Proctor and gradation QV sample, testing half for QV, and retaining the remaining half for 10 business days.

(4) The department will conduct QV Proctor and gradation tests in a separate laboratory and with separate equipment from the contractor's QC tests. The department will use the same methods specified for QC testing.

(5) The department will assess QV results by comparing to the appropriate specification limits. If QV test results conform to this special provision, the department will take no further action. If density QV test results are nonconforming, the area shall be reworked until the density requirements of this special provision are met. If the gradation test results are nonconforming, standard spec 106.5 will apply. Differing QC and QV nuclear density values of more than 1.5 pcf will be investigated and resolved. QV density tests will be based on the appropriate QC Proctor test results, unless the QV

and QC Proctor result difference is greater than 3.0 pcf. Differing QC and QV Proctor values of more than 3.0 pcf will be investigated and resolved.

(6) The department will also provide personnel to be onsite and confirm the required number of passes of the compaction equipment for the Alternate Wall Backfill Type B during wall backfill placement and compaction activities on a random basis. This work does not relieve the contractor of the responsibility to observe and document fill placement and compaction as required in C.4.2 and C.4.4.

### C.4.5.3 Independent Assurance (IA)

(1) Independence assurance is unbiased testing the department performs to evaluate the department's QV and the contractor's QC sampling and testing, including personnel qualifications, procedures, and equipment. The department will perform an IA review according to the department's independent assurance program. That review may include one or more of the following:

1. Split sample testing.
2. Proficiency sample testing.
3. Witnessing sampling and testing.
4. Test equipment calibration checks.
5. Reviewing required worksheets and control charts.
6. Requesting that testing personnel perform additional sampling and testing.

(2) If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend placement until action is taken. Resolve disputes as specified in C.4.5.4.

### C.4.5.4 Dispute Resolution

(1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate sampling and testing procedures, and perform additional testing. Use ASTM E 178 to evaluate potential statistically outlying data.

(2) Production test results, and results from other process control testing, may be considered when resolving a dispute.

(3) If the project personnel cannot resolve a dispute, and the dispute affects payment or could result in incorporating non-conforming product or work, the department will use third party testing to resolve the dispute. The department's central office laboratory, or a mutually agreed on independent testing laboratory, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent laboratory. The department may use third party test results to evaluate the quality of questionable materials and determine the appropriate payment. The department may reject material

or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

**C.5 Geotechnical Information**
Geotechnical data to be used in the design of the wall is given on the wall plan. After completing wall excavation of the entire reinforced soil zone, notify the department and allow the Regional Geotechnical Engineer two working days to review the foundation.

**D Measurement**
The department will not measure Wall Concrete Panel Mechanically Stabilized Earth LRFD/QMP. The department will use pay plan quantity according to the Pay Plan Quantity article. No measurement of quantities shall be made in the field. Unless the engineer directs in writing, a change to the limits indicated on the contract plan, wall area constructed above or below these limits will not be measured for payment.

**E Payment**
The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0165.4710 | Wall Concrete Panel Mechanically Stabilized Earth LRFD/QMP | SF |

Payment is full compensation for supplying a design and shop drawings; preparing the site, including all necessary excavation and disposal of materials; supplying all necessary wall components to produce a functional system including cap and copings; constructing the retaining system including drainage system; providing backfill (Type A or Type B), backfilling, compacting, developing/completing/documenting the quality management program, performing compaction testing/observation. Parapets, railings, abutment bodies and other items above the wall cap or coping will be paid for separately. Vehicle barrier and its support will be paid separately. Any temporary return walls, such as a wire face MSE wall, required to facilitate construction of a portion of wall with Backfill Type B is incidental to this bid item.

Any required topsoil, fertilizer, seeding or sodding and mulch will be paid for at the contract unit price of topsoil, fertilizer, seeding or sodding and mulch, respectively.

## 380. Mechanically Stabilized Earth Backfill Abutment, Item SPV.0165.4715.

**A Description**
This special provision describes designing, furnishing materials and erecting a permanent earth retention system attached to a cast-in-place abutment in accordance to the lines, dimension, elevations and details as shown on the plans and provided in the contract.

**B Materials**
Required materials shall be in accordance to the applicable provisions of "Wall Concrete panel Mechanically Stabilized Earth LRFD/QMP; Item SPV.0164.4710

**C Construction**
This work shall be done in accordance to the applicable provisions of "Wall Concrete Panel Mechanically Stabilized Earth LRFD/QMP; Item SPV.0165.4710".

The cast-in-place abutment serves as the facing for the mechanically stabilized wall therefore concrete facing panels and leveling pads are not part of this special provision.

**D Measurement**
The department will measure Mechanically Stabilized Earth Backfill Abutment by the square foot acceptably completed. The quantity will be surface area of the back of the abutment with pay limits as shown on the plans.

The cast-in-place abutment is not included in this special provision and is paid for separately under the standard bid item "Concrete Masonry Bridges".

**E Payment**
The department will pay for the measured quantity at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0165.4715 | Mechanically Stabilized Earth Backfill Abutment | SF |

Payment is full compensation for supplying a design and shop drawings; preparing the site, including all necessary excavation and disposal of materials; supplying all necessary wall components to produce a functional system including constructing the retaining system including drainage system; providing backfill, backfilling, compacting, developing/completing/documenting the quality management program, performing compaction testing/observation. The cast-in-place abutment is not included in this special provision and is paid for separately under the standard bid item "Concrete Masonry Bridges". Parapets, railings, abutment bodies and other items will be paid for separately.

## 381. Wall Concrete Panel Mechanically Stabilized Earth LRFD/LFCF, Item SPV.0165.4720.

**A Description**
This special provision describes designing, furnishing materials and erecting a permanent earth retention system in accordance to the lines, dimension, elevations and details as shown on the plans and provided in the contract. The design life of the mechanically stabilized earth (MSE) wall and all wall components shall be 75 years minimum.

This special provision describes using Lightweight Foamed Concrete Fill (LFCF) for the MSE wall backfill in lieu of the engineered granular backfill typically specified for MSE walls. Place LFCF to the limits shown in the plans. Engineered granular backfill is required as designated and shown on the plans in the wall transition zones where the MSE wall backfill transitions from LFCF to conventional engineered granular backfill.

This special provision describes the quality management program (QMP) for MSE walls. A quality management program is defined as all activities, including process control, inspection, sampling and testing, and necessary adjustments in the process that are related to the construction of the MSE wall, which meets all the requirements of this provision.

This special provision describes contractor quality control (QC) sampling and testing for LFCF cast density and compressive strength and granular backfill density testing, documenting those results, and documenting related production and placement process changes. This special provision also describes department quality verification (QV), independent assurance (IA), and dispute resolution.

Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes sampling and testing procedures. The contractor may obtain the CMM from the department's web site at:
http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/rdwy/cmm.aspx

## B Materials

### B.1 Proprietary Mechanically Stabilized Earth Concrete Panel Wall Systems

The supplied wall system must be from the department's approved list of Concrete Panel Mechanically Stabilized Earth Wall systems (Concrete Panel MSE Walls).

Proprietary wall systems may be used for this work, but must conform to the requirements of this specification and be pre-approved for use by the department's Bureau of Structures, Structures Design Section. The department maintains a list of pre-approved Concrete Panel Mechanically Stabilized Earth Wall systems. To be eligible for use on this project, a system must have been pre-approved and added to that list prior to the bid opening date. The name of the pre-approved proprietary wall system selected shall be furnished to the engineer within 25 days after the award of contract. The location of the plant manufacturing the concrete panels shall be furnished to the engineer at least 14 days prior to the start of panel production.

To receive pre-approval, the retaining wall system must comply with all pertinent requirements of this provision. Applications for pre-approval may be submitted at any time. Applications must be prepared in accordance to the requirements of Chapter 14 of the department's LRFD Bridge Manual. Information and assistance with the pre-approval process can be obtained by contacting the Structures Design Section in Room 601 of the Hill Farms State Transportation Building in Madison or by calling (608) 266-8494.

### B.2 Design Requirements

It is the responsibility of the contractor to supply a design and supporting documentation as required by this special provision, for review by the department, to show the proposed wall design is in compliance with the design specifications. Four copies of the following shall be submitted to the engineer for review and acceptance no later than 60 days from the date of notification to proceed with the project.

The plans and shop drawings shall be prepared on reproducible sheets 11 inch x 17 inch, including borders. Each sheet shall have a title block in the lower right corner. The title block shall include the project identification number and structure number. Design calculations and notes shall be on 8 ½ inch x 11 inch sheets, and shall contain the project identification number, name or designation of the wall, date of preparation, initials of designer and checker, and page number at the top of the page. All plans, shop drawings, and calculations shall be signed, sealed and dated by a professional engineer licensed in the State of Wisconsin.

The design of the Concrete Panel MSE wall shall be in compliance with the *AASHTO LRFD Bridge Design Specifications 5th Edition 2010*, (AASHTO LRFD) with latest interim specifications for Mechanically Stabilized Earth Walls, WisDOT's current *Standard Specifications for Highway and Structure Construction* (Standard Specifications), Chapter 14 of the WisDOT LRFD Bridge Manual and standard engineering design procedures as determined by the department. Loads, load combinations, load and resistance factors shall be as specified in AASHTO LRFD Section 11. The associated resistance factors shall be defined in accordance to Table11.5.6-1 LRFD.

Design and construct the walls in accordance to the lines, grades, heights and dimensions shown on the plans, as herein specified, and as directed by the engineer. Where walls or wall sections intersect with an included angle of 130 degrees or less, a vertical corner element separate from the standard panel face shall abut and interact with the opposing standard panels. The corner element shall have ground reinforcement connected specifically to that panel and shall be designed to preclude lateral spread of the intersecting panels. If the wall is installed in front of a bridge abutment or wing, it shall also be designed to resist the applied abutment/bridge lateral forces specified on the contract plans.

Walls parallel to supporting highway traffic shall be designed for the effects of highway surcharge loading equivalent of 2 feet soil surcharge weight or 240 psf. The design shall also consider the traffic barrier impact where applicable. Walls that do not carry highway traffic shall be designed for a live load surcharge of 100 psf in accordance to Chapter 14 of the WisDOT LRFD Bridge Manual or as stated on the plans.

Use LFCF as MSE backfill within the limits shown on the plans. The design of the wall and reinforced backfill zone behind this wall is to be based on an equivalent backfill area of assumed granular backfill with a maximum angle of internal friction of 30 degrees and unit weight density equal to the unit weight density of the LFCF backfill. All design and geometric requirements specified by AASHTO and hereinafter for MSE walls with granular backfill, including minimum length of MSE reinforcement will apply to this wall backfilled with LFCF material in lieu of the granular backfill.

A maximum value of the angle of internal friction used for design for the wall granular backfill placed in the wall transition zones shall be assumed to be 30 degrees.

An external stability check at critical wall stations showing Capacity Demand Ratios (CDR) for sliding, eccentricity, and bearing checks is performed by the department and are provided on the wall plans.

The design of the Concrete Panel Mechanically Stabilized Earth wall by the contractor shall consider the internal and compound stability of the wall mass in accordance to AASHTO LRFD 11.10.6. The internal stability shall include soil reinforcement pullout, soil reinforcement rupture, and panel-reinforcement connection failure at each soil reinforcement level. The design shall be performed using the Simplified Method or Coherent Gravity Method. Calculations for factored stresses and resistances shall be based upon assumed conditions at the end of the design life. Compound stability shall be computed for the applicable strength limits.

Facing panels shall meet the design requirements of AASHTO LRFD 11.10.2.3. The Facing panels shall also be designed to resist fluid pressures due to LFCF placement and compaction stresses that occur during the wall erection. The minimum thickness of the Facing panel shall be 5.5 inches. The surface area of a standard single panel cannot exceed 60 square feet. The maximum height of a standard panel shall be 5 feet. The top and bottom panels may exceed 5 foot in height based on site topography subject to the approval by the Structures Design Section. The design of the steel reinforcement within the panels shall be based on one-way bending action. Design the wall panels and joints between panels to accommodate a maximum differential settlement of 1 foot over a 100-foot length, unless the plans indicate other.

The minimum length of soil reinforcement measured from the back face of the wall shall be equal to 0.7 times the wall height or as shown on the plan; whichever is greater. In no case shall this length be less than 8 feet. The soil reinforcement length shall be the same from the bottom to the top of the wall. The soil reinforcement shall extend a minimum of 3.0 feet beyond the theoretical failure plane in all cases. The maximum vertical spacing of soil reinforcement layers shall be 31 inches. The uppermost layer of the reinforcement shall be located between 6 inches and 18 inches below the bottom of an overlying slab, footing or top of the wall. The upper layers of the soil reinforcement shall also be checked to verify that they have sufficient tensile resistance against traffic barrier impact where applicable.

All soil reinforcement steel required for the reinforced soil zone shall be connected to the face panels. The reinforcement and the reinforcement/facing connection strength shall be designed to resist maximum factored reinforcement loads in accordance to AASHTO LRFD Section 11.10.6. Facing connection strength shall be defined as the resistance factor times the failure load, or the load at 0.5 inch deformation times 0.9, whichever is less. The nominal long term design strength in steel reinforcement and connections shall be based upon assumed conditions at the end of the design life.

Soil reinforcement shall be prefabricated into single or multiple elements before galvanizing. Soil reinforcement shall be fabricated or designed to avoid piling, drainage structures or other obstacles in the fill without field modifications. Cutting or altering of

the basic structural section of either the strip or grid at the site is prohibited unless approved by the Structures Design Section. A minimum clearance of 3" shall be maintained between any obstruction and reinforcement unless otherwise approved by the Structures Design Section. Splicing steel reinforcement is not allowed, unless approved by the Structures Design Section.

MSE facing panels shall be installed on concrete leveling pads. The minimum cross section of the leveling pad shall be 6-inches deep by 1-foot wide. Potential depth of frost penetration at the wall location shall not be considered in designing the wall for depth of leveling pad.

Submit the following to the engineer for review: complete design calculations, explanatory notes, supporting materials, specifications, and detailed plans and shop drawings for the proposed wall system. Sample analyses and hand output shall be submitted to verify the output by the software. The design calculations and notes shall clearly indicate the Capacity to Demand Ratios (CDR) for all internal stabilities as defined in AASHTO LRFD.

The wall submittal package shall be submitted electronically to the engineer and Structures Design Section. Submit all required information no later than 30 days prior to beginning construction of the wall. The detailed plans and shop drawings shall include all details, dimensions, quantities and cross-sections necessary to construct the walls.

**B.3 Wall System Components**

Materials furnished for wall system components under this contract shall conform to the requirements of this specification. All certifications related to material and components of the wall systems specified in this subsection shall be submitted to the engineer.

**B.3.1 General**

The walls shall have modular precast concrete face panels produced by a wet cast process, and have cast-in-place concrete pads or footings. The concrete panels shall have a minimum strength of 4000 psi at 28 days. The concrete for the panels shall be air entrained, with an air content of 6% +/- 1.5%. All materials for the concrete mixture for the panels shall meet the requirements of standard spec 501. The panel edges shall be configured so as to conceal the joints. The detail shall be a shiplap, tongue and groove or other detail adequate to prevent vandalism or ultraviolet light damage to the backside of the wall joint covering. Joints between panels shall be no more than 0.75 inch. Use full wall height slip joints at points of differential settlement when detailed on the plan. Horizontal joints must be provided with a compressible bearing material to prevent concrete to concrete contact.

A minimum of two bearing pads shall be used per panel. The allowable bearing stress shall not exceed 900 psi. The bearing pads shall be preformed EPDM rubber conforming to ASTM D-2000, Grade 2, Type A, Class A with a minimum Durometer Hardness of 80, or high- density polyethylene pads with a minimum density of 0.034 $lb/in^3$ in accordance to ASTM 1505.

An 18-inch wide geotextile shall be used on the backface of the wall panels to cover all panel joints. The geotextile shall meet the physical requirements stated in standard spec 645.2.4 for Geotextile Fabric, Type DF, Schedule B, except that the grab tensile strength shall be a minimum of 180 pounds in both the machine and cross-machine directions. The geotextile shall be attached with a standard construction adhesive suitable for use on concrete surfaces and cold temperatures. The adhesive shall be applied to the panels, not to the geotextile.

All steel portions of the wall system exposed to earth or LFCF backfill shall be galvanized. All soil reinforcement and attachment devices shall be carefully inspected to ensure they are true size and free from defects that may impair the strength and durability.

For cast in place sections of cap and coping, use poured concrete masonry Grade A, A-FA, A-S, A-T, A-IS or A-IP concrete conforming to standard spec 501 as modified in standard spec 716. Provide QMP for cast in place cap and coping concrete as specified in standard spec 716, Class II Concrete.

Use a wall leveling pad that consists of poured concrete masonry, Grade A, A-FA, A-S, A-T, A-IS or A-IP concrete conforming to standard spec 501 as modified in standard spec 716. Provide QMP for leveling pad concrete as specified in standard spec 716, Class III Concrete.

The minimum embedment to the top of the leveling pad shall be 1 foot 6 inches or as given on the plan or given in AASHTO LRFD 11.10.2.2 whichever is greater. Step the leveling pad to follow the general slope of the ground line. The leveling pad's steps shall keep the bottom of the wall within one half the panel heights of the minimum embedment i.e. the minimum embedment plus up to one half the height of one panel. Additional embedment may be detailed by the contractor, but will not be measured for payment.

**B.3.2 Backfill**
Furnish and place backfill for mechanically stabilized earth concrete panel walls as shown on the plans and as hereinafter provided.

**B.3.2.1 LFCF Backfill**
Furnish LFCF backfill for mechanically stabilized earth concrete panel walls LRFD LFCF as shown on the plans and as hereinafter provided. Provide LFCF material meeting the requirements specified in SPV Article Lightweight Foamed Concrete Fill Grade 1 and Lightweight Foamed Concrete Fill Grade 2 included in the contract.

**B.3.2.3 Transition Zone Backfill**
In the LFCF transition zone indicated on the plans, where the MSE wall backfill transitions from LFCF backfill to conventional MSE granular backfill, provide and use backfill that consists of natural sand or a mixture of sand with gravel, crushed gravel or crushed stone. It shall not contain recycled or milled asphalt, recycled concrete, foundry sand, bottom ash, blast furnace slag or other potentially corrosive material.

Provide material conforming to the following gradation requirements as per AASHTO T27.

| Sieve Size | Percentage by Weight Passing |
|---|---|
| 1 inch | 100 |
| No. 40 | 0 – 60 |
| No. 200 | 0 – 15 |

The material shall have a liquid limit not greater than 25, as per AASHTO T89, and a plasticity index not greater than 6, as per AASHTO T90. Provide the percent by weight, passing the #4 sieve.

In addition, backfill material shall meet the following requirements.

| Test | Method | Value |
|---|---|---|
| pH | AASHTO T-289 | 5 – 10.0 |
| Sulfate content | AASHTO T-290 | 200 ppm max. |
| Chloride content | AASHTO T-291 | 100 ppm max. |
| Electrical Resistivity | AASHTO T-288 | 3000 ohm/cm min. |
| Organic Content | AASHTO T-267 | 1.0% max. |
| Angle of Internal Friction | AASHTO T-236* | 30 degrees min. (At 95.0% of maximum density and optimum moisture, per AASHTO T99, or as modified by C.2.) |

*If the amount of P-4 material is greater than 60%, use AASHTO 236 with a standard-size shear box. Test results of this method may allow the use of larger angles of internal friction, up to the maximum allowed by this specification.

If the amount of P-4 material is less than or equal to 60%, two options are available to determine the angle of internal friction. The first method is to perform a fractured faces count, per ASTM 5821, on the R-4 material. If more than 90% of the material is fractured on one face and more than 50% is fractured on two faces, the material meets the specifications and the angle of internal friction can be assumed to be 30 degrees. The second method allows testing all P-1" material, as per AASHTO T-236, with a large shear box. Test results of this second method may allow the use of larger angles of internal friction, up to the maximum allowed by this specification.

Prior to placement of the backfill, obtain and furnish to the engineer a certified report of test results that the backfill material complies with the requirements of this specification. Specify the method used to determine the angle of internal friction. This certified report of

test shall be less than 6 months old. Tests will be performed by a certified independent laboratory. In addition, when backfill characteristics and/or sources change, provide a certified report of tests for the new backfill material. Additional certified reports of tests (except Angle of Internal Friction test), are also required. These additional backfill tests may be completed at the time of material production or material placement, with concurrence of the engineer. If this additional testing is completed at the time of material production, complete testing for every 2000 cubic yards of backfill or portion thereof. If this additional testing is completed at the time of material placement, complete testing for every 2000 cubic yards of backfill, or portion thereof, used per wall. All certified report of test results shall be less than 6 months old and performed by a certified independent laboratory.

## C Construction

### C.1 Excavation and Backfill

Excavation will encompass preparing the leveling pad foundation and the area below the reinforcing strips in accordance to standard spec 206. The volume of excavation covered is limited to the width of the reinforced mass and to the depth of the leveling pad unless shown or noted otherwise on the plan. At the end of each working day, provide good temporary drainage such that the backfill shall not become contaminated with run-off soil or water if it should rain. Do not stockpile or store materials or large equipment within 10 feet of the back of the wall.

### C.2 Backfill

#### C.2.1 LFCF Backfill

Submit an LFCF placement plan, trial batch test results, and quality assurance samples per C.1 of the SPV Article Lightweight Foamed Concrete Fill Grade 1 and Lightweight Foamed Concrete Fill Grade 2 included in the contract. Place LFCF backfill in accordance to the requirement specified in SPV Article Lightweight Foamed Concrete Fill Grade 1 and Lightweight Foamed Concrete Fill Grade 2 included in the contract.

#### C.2.2 Transition Zone Granular Backfill Compaction

Place and compact all granular backfill placed in the LFCF transition zone indicated on the plans behind the wall as specified in standard spec 207.3.6. Compact the backfill to 95.0% of maximum dry density as determined by AASHTO T-99 (modified to compute densities to the nearest 0.1 pcf), or as modified as follows. If the gradation of the granular backfill is such that the P-200 material is less than 7% and the P-40 is less than 30%, a one-point Proctor test can be conducted in place of the 5-point Proctor. To complete this one-point test, compact the sample at a moisture content of 6%, then compute the actual (as-tested) sample moisture after completion of the test. Use Method B or D, and perform this test without removing oversize particles and without correction for coarse particles, as per AASHTO T224. The one-point as-tested moisture content represents the optimum moisture, and the measured one-point density represents the maximum wet density of the material. From these values, the maximum dry density can be computed.

Ensure adequate moisture is present in the backfill during placement and compaction to prevent segregation and to help achieve compaction.

Compaction of backfill within 3 feet of the back face of the wall should be accomplished using lightweight compaction devices. Use of heavy compaction equipment or vehicles should be avoided within 3 feet of the panels.

**C.2.3 MSE Reinforcement**

Bending of MSE reinforcement that result in a kink in the reinforcement shall not be allowed. If skewing of the reinforcement is required due to obstructions in the reinforced fill, the maximum skew angle shall not exceed 15 degrees from the normal position unless a greater angle is shown on the plans. The adequacy of the skewed reinforcement in such a case shall be addressed by supporting calculations.

For embedment in LFCF backfill, place MSE reinforcement that will become embedded in the next lift of LFCF prior to placing the LFCF lift. Provide temporary supports to hold the MSE reinforcement a minimum of 4" above the previously placed LFCF backfill so that the MSE reinforcement becomes fully encapsulated in the subsequent LFCF lift placement. Provide adequate supports to hold the MSE reinforcement in an approximate horizontal position with no kinks, sharp bends or abrupt changes in direction in the reinforcement. Do not lay the MSE reinforcement directly on the top of the prior LFCF placement or otherwise locate the MSE reinforcement along cold joints between LFCF placements.

For embedment of MSE reinforcements in granular backfill, place and compact the MSE backfill to the level of the next higher layer of MSE reinforcement before placing the MSE reinforcement or connecting it to the wall facing. The MSE reinforcement shall lay horizontally on the top of the most recently placed and compacted layer of MSE backfill.

**C.3 Panel Tolerances**

As backfill material is placed behind a panel, maintain the panel in its proper inclined position according to the supplier specifications and as approved by the engineer. The supplier shall specify the back batter so that the final position of the wall is vertical. Vertical tolerances and horizontal alignment tolerances shall not exceed ¾-inch when measured along a 10-foot straight edge. The maximum allowable offset in any panel joint shall be ¾-inch. The overall vertical tolerance of the wall (plumbness from top to bottom) shall not exceed ½-inch per 10 feet of wall height. Erect the precast face panels to ensure that they are located within 1 inch from the contract plan offset at any location to ensure proper wall location at the top of the wall. Provide a ¾-inch joint separation between all adjacent face panels to prevent direct concrete-to-concrete contact. Maintain this gap by the use of bearing pads and/or alignment pins. Failure to meet this tolerance shall cause the engineer to require the contractor to disassemble and re-erect the affected portions of the wall. In addition, imperfect molding, honeycombing, cracking or severe chipping of panels shall be cause of panel rejection.

## C.4 Quality Management Program

### C.4.1 Quality Control Plan

Submit a comprehensive written quality control plan to the engineer at or before the pre-construction meeting. Do not perform MSE wall construction work before the engineer reviews and accepts the plan. Construct the project as the plan provides.

Do not change the quality control plan without the engineer's review and acceptance. Update the plan with changes as they become effective. Provide a current copy of the plan to the engineer and post in the contractor's laboratory as changes are adopted. Ensure that the plan provides the following elements:

1. An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of QC personnel.
2. The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication process that will be used, and action time frames.
3. A list of source locations, section and quarter descriptions, for all aggregate materials requiring QC testing.
4. Descriptions of stockpiling and hauling methods.
5. An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.
6. Location of the QC laboratory, retained sample storage, and other documentation.
7. A summary of the locations and calculated quantities to be tested under this provision.

### C.4.2 Quality Control Personnel

Perform the quality control sampling, testing, and documentation required under this provision using HTCP certified technicians. Have a HTCP Level I Grading Technician, Level I Aggregate Technician, or Assistant Certified Aggregate Technician (ACT) present at the each grading site during all wall backfill placement, compaction, and nuclear testing activities. Have a HTCP Level I Nuclear Density Technician or Assistant Certified Nuclear Density Technician (ACT) perform field density and field moisture content testing.

If an Assistant Certified Technician (ACT) is performing sampling or testing, a certified technician must coordinate and take responsibility for the work an ACT performs. Have a certified technician ensure that all sampling and testing is performed correctly, analyze test results, and post resulting data. No more than one ACT can work under a single certified technician.

### C.4.3 Equipment

Furnish the necessary equipment and supplies for performing quality control testing. Ensure that all testing equipment conforms to the equipment specifications applicable to the required testing methods. The engineer may inspect the measuring and testing devices to confirm both calibration and condition. Calibrate all testing equipment according to the CMM and maintain a calibration record at the laboratory.

Furnish nuclear gauges from the department's approved product list at http://www.atwoodsystems.com/materials. Ensure that the gauge manufacturer or an approved calibration service calibrates the gauge the same calendar year it is used on the project. Retain a copy of the calibration certificate with the gauge.

Conform to ASTM D 6938 and CMM 8.15 for density testing and gauge monitoring methods. Perform nuclear gauge measurements using gamma radiation in the backscatter or direct transmission position. Perform each test for 4 minutes of nuclear gauge count time.

Split each Proctor sample and identify so as to provide comparison with the department's test results. Unless the engineer directs otherwise, retain the QC split samples for 14 calendar days and promptly deliver the department's split samples to the department

**C.4.4 Quality Control (QC) Testing**
**C4.4.1 LFCF Backfill**
**C4.4.1.1 Cast Density of Field Installed LFCF**
Test cast density in accordance to ASTM C 796

1. Prior to placement of the initial batch, the installer shall check the density and adjust the mix as required to obtain the manufacturer's specified cast density at point of placement.
2. At hourly intervals during placement, monitor the density and adjust as necessary to maintain the specified cast density.

**C.4.4.1.2 Strength Testing**
Conduct strength testing in accordance to ASTM C 796 except do not oven dry the test specimens.

1. Furnish a sufficient quantity of molded and cured cylinders measuring 3-inches in diameter by 6-inches high for required strength tests. Provide molds, and a similar curing environment of the LFCF being tested. Prepare cylinders in accordance to ASTM C1064.
2. Provide certified strength test results to the engineer for acceptance. At a minimum, conduct a set of three (3) strength tests at 1, 2, and 28 day intervals for each 500 cubic yards of LFCF placed and a minimum of two sets of four cylinders each per day
3. Perform the compressive strength testing at a department qualified laboratory meeting the requirements of C.5 in SPV Article Lightweight Foamed Concrete Fill Grade 1 and Lightweight Foamed Concrete Fill Grade 2 included in the contract.

**C4.4.2 Granular Backfill**
Perform compaction testing on the granular backfill. Conform to CMM 8.15 for testing and gauge monitoring methods. Conduct testing at a minimum frequency of 1 test per 150 cubic yards of backfill, or major portion thereof. A minimum of one test for every lift is required. Deliver documentation of all compaction testing results to the engineer at the time of testing.

Perform 1 gradation test every 750 cubic yards of fill and one 5-point Proctor test (or as modified in C.2) every 2000 cubic yards of fill. Provide the region split samples of both within 72 hours of sampling, at the region laboratory. Test sites shall be selected using ASTM Method D3665. Provide Proctor test results to the engineer within 48 hours of sampling. Provide gradation test results to the engineer within 24 hours of sampling.

### C.4.5 Department Testing

#### C.4.5.1 General

(1) The department will conduct verification testing to validate the quality of the product and independent assurance testing to evaluate the sampling and testing. The department will provide the contractor with a listing of names and telephone numbers of all QV and IA personnel for the project, and provide test results to the contractor within 2 business days after the department obtains the sample.

#### C.4.5.2 Quality Verification (QV) Testing

(1) The department will have an HTCP technician, or ACT working under a certified technician, perform QV sampling and testing. Department verification testing personnel must meet the same certification level requirements specified in C.4.2 for contractor testing personnel for each test result being verified. The department will notify the contractor before sampling so the contractor can observe QV sampling.

(2) The department will conduct QV tests at the minimum frequency of 30% of the required contractor cast density, compressive strength, density, Proctor and gradation tests.

(3) The department will obtain LFCF material for cast density and compressive strength tests at random intervals independent of the contractor's QC work. For granular backfill the department will locate density tests and gradation samples randomly, at locations independent of the contractor's QC work. The department will split each Proctor and gradation QV sample, testing half for QV, and retaining the remaining half for 10 business days.

(4) The department will conduct cast density, compressive strength, QV Proctor and gradation tests in a separate laboratory and with separate equipment from the contractor's QC tests. The department will use the same methods specified for QC testing.

(5) The department will assess QV results by comparing to the appropriate specification limits. If QV test results conform to this special provision, the department will take no further action. If density QV test results are nonconforming, the area shall be reworked until the density requirements of this special provision are met. If the cast density, compressive strength or gradation test results are nonconforming, standard spec 106.5 will apply. Differing QC and QV nuclear density values of more than 1.5 pcf will be investigated and resolved. QV density tests will be based on the appropriate QC Proctor test results, unless the QV and QC Proctor result difference is greater than

3.0 pcf. Differing QC and QV Proctor values of more than 3.0 pcf will be investigated and resolved. Differing QC and QV cast density and compressive strength test values of more than 4% will be investigated and resolved.

### C.4.5.3 Independent Assurance (IA)

(1) Independence assurance is unbiased testing the department performs to evaluate the department's QV and the contractor's QC sampling and testing, including personnel qualifications, procedures, and equipment. The department will perform an IA review according to the department's independent assurance program. That review may include one or more of the following:

1. Split sample testing.
2. Proficiency sample testing.
3. Witnessing sampling and testing.
4. Test equipment calibration checks.
5. Reviewing required worksheets and control charts.
6. Requesting that testing personnel perform additional sampling and testing.

(2) If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend placement until action is taken. Resolve disputes as specified in C.4.5.4.

### C.4.5.4 Dispute Resolution

(1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate sampling and testing procedures, and perform additional testing. Use ASTM E 178 to evaluate potential statistically outlying data.

(2) Production test results, and results from other process control testing, may be considered when resolving a dispute.

(3) If the project personnel cannot resolve a dispute, and the dispute affects payment or could result in incorporating non-conforming product or work, the department will use third party testing to resolve the dispute. The department's central office laboratory, or a mutually agreed on independent testing laboratory, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent laboratory. The department may use third party test results to evaluate the quality of questionable materials and determine the appropriate payment. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

**C.5 Dampproofing**
Apply dampproofing conforming to standard spec 516 to the final horizontal and vertical surfaces of the LFCF material at locations designated on the plans.

**C.6 Geotechnical Information**
Geotechnical data to be used in the design of the wall is given on the wall plan. After completing wall excavation of the entire reinforced soil zone, notify the department and allow the Regional Geotechnical Engineer two working days to review the foundation.

**D Measurement**
The department will not measure Wall Concrete Panel Mechanically Stabilized Earth LRFD/LFCF. The department will use pay plan quantity according to the Pay Plan Quantity article. No measurement of quantities shall be made in the field. Unless the engineer directs in writing, a change to the limits indicated on the contract plan, wall area constructed above or below these limits will not be measured for payment.

**E Payment**
The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0165.4720 | Wall Concrete Panel Mechanically Stabilized Earth LRFD/LFCF | SF |

Payment is full compensation for supplying a design and shop drawings; preparing the site, including all necessary excavation and disposal of materials; supplying all necessary wall components to produce a functional system including cap and copings; constructing the retaining system including drainage system; providing and placing LFCF and granular backfill, compacting, developing/completing/documenting the quality management program, performing cast density, compressive strength and compaction testing. Parapets, railings, abutment bodies and other items above the wall cap or coping will be paid for separately. Vehicle barrier and its support will be paid separately.

Any required topsoil, fertilizer, seeding or sodding and mulch will be paid for at the contract unit price of topsoil, fertilizer, seeding or sodding and mulch, respectively.

Dampproofing will be measured and paid for separately in accordance to standard spec 516.

## 382. Wall Wire Faced Mechanically Stabilized Earth LRFD/QMP, Item SPV.0165.4730.

**A Description**
This special provision describes designing, furnishing materials and erecting a permanent earth retention system in accordance to the lines, dimension, elevations and details as shown on the plans and provided in the contract. The design life of the wall and all wall components shall be 75 years minimum.

This special provision describes the quality management program (QMP) for MSE walls. A quality management program is defined as all activities, including process control, inspection, sampling and testing, and necessary adjustments in the process that are related to the construction of the MSE wall, which meets all the requirements of this provision.

This special provision describes contractor quality control (QC) sampling and testing for backfill density testing, documenting those results, and documenting related production and placement process changes. This special provision also describes department quality verification (QV), independent assurance (IA), and dispute resolution.

Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes sampling and testing procedures. The contractor may obtain the CMM from the department's web site at:
http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/rdwy/cmm.aspx

**B Materials**

**B.1 Proprietary Wire Faced Mechanically Stabilized Earth Wall Systems**

The supplied wall system must be from the department's approved list of Wire Faced Mechanically Stabilized Earth Wall systems (Wire Faced MSE Walls).

Proprietary wall systems may be used for this work, but must conform to the requirements of this specification and be pre-approved for use by the department's Bureau of Structures, Structures Design Section. The department maintains a list of pre-approved Wire Faced Mechanically Stabilized Earth Wall systems. The name of the pre-approved proprietary wall system selected shall be furnished to the engineer within 25 days after the award of contract.

To receive pre-approval, the retaining wall system must comply with all pertinent requirements of this provision. Applications for pre-approval may be submitted at any time. Applications must be prepared in accordance to the requirements of Chapter 14 of the department's current LRFD Bridge Manual. Information and assistance with the pre-approval process can be obtained by contacting the Structures Design Section in Room 601 of the Hill Farms State Transportation Building in Madison or by calling (608) 266-8494.

**B.2 Design Requirements**

It is the responsibility of the contractor to supply a design and supporting documentation as required by this special provision for review by the department to show the proposed wall design is in compliance with the design specifications. Four copies of the following shall be submitted to the engineer for review and acceptance no later than 60 days from the date of notification to proceed with the project.

The plans and shop drawings shall be prepared on reproducible sheets 11 inch x 17 inch, including borders. Each sheet shall have a title block in the lower right corner. The title block shall include the project identification number and structure number. Design

calculations and notes shall be on 8 ½ inch x 11 inch sheets, and shall contain the project identification number, name or designation of the wall, date of preparation, initials of designer and checker, and page number at the top of the page. All plans, shop drawings, and calculations shall be signed, sealed and dated by a professional engineer licensed in the State of Wisconsin.

The design of the Wire Faced MSE Walls shall be in compliance with the *AASHTO LRFD Bridge Design Specifications 5th Edition 2010*, (AASHTO LRFD) with latest interim specifications for Mechanically Stabilized Earth Walls, WisDOT's current *Standard Specifications for Highway and Structure Construction* (Standard Specifications), Chapter 14 of the WisDOT LRFD Bridge Manual and standard engineering design procedures as determined by the department. Loads, load combinations, load and resistance factors shall be as specified in AASHTO LRFD Section 11. The associated resistance factors shall be defined in accordance to Table 11.5.6-1 LRFD.

Design and construct the walls in accordance to the lines, grades, heights and dimensions shown on the plans, as herein specified, and as directed by the engineer. If the wall is installed in front of a bridge abutment or wing, it shall also be designed to resist the applied abutment/bridge lateral forces specified on the contract plans.

Walls parallel to supporting highway traffic shall be designed for the effects of highway surcharge loading equivalent of 2 feet soil surcharge weight or 240 psf. The design shall also consider the traffic barrier impact where applicable. Walls that do not carry highway traffic shall be designed for a live load surcharge of 100 psf in accordance to Chapter 14 of the WisDOT LRFD Bridge Manual or as stated on the plans.

A maximum value of the angle of internal friction of the wall backfill material used for design shall be assumed to be 30 degrees without a certified report of tests. If a certified report of tests yields an angle of internal friction greater than 30 degrees, the larger test value may be used for design, up to a maximum value of 36 degrees.

An external stability check at critical wall stations showing Capacity Demand Ratios (CDR) for sliding, eccentricity, and bearing checks is performed by the department and are provided in the wall plans.

The design of the Wire Faced MSE Walls by the contractor shall consider the internal and compound stability of the wall mass in accordance to AASHTO LRFD 11.10.6. The internal stability shall include soil reinforcement pullout, soil reinforcement rupture, and panel-reinforcement connection failure at each soil reinforcement level. The design shall be performed using the Simplified Method or Coherent Gravity Method. Calculations for factored stresses and resistances shall be based upon assumed conditions at the end of the design life. Compound stability shall be computed for the applicable strength limits.

The minimum embedment of the Wire Faced MSE wall shall be 1 foot 6 inches, or as given on the contract plan. Frost depth shall not be considered. Additional embedment may be detailed by the contractor, but will not be measured for payment. The wall facings

shall be designed in accordance to AASHTO 11.10.2.3. A fine metallic screen and a geotextile filter fabric shall be used at the front face of the wall to retain the fines of the soil mass.

The nominal long term design strength to be used in steel reinforcement and connector design shall consider the corrosion losses and based upon conditions at the end of the design life. The minimum length of soil reinforcement measured from the back face of the wall shall be equal to 0.7 of the wall height or as shown on the plan. In no case shall this length be less than 8 feet. The soil reinforcement shall be the same length from the bottom to the top of each wall section. All soil reinforcement layers shall be connected to facings. The soil reinforcement shall extend 3 feet beyond the theoretical failure plane in all cases. The maximum vertical spacing of soil reinforcement layers shall be 24 inches. The uppermost layer of the reinforcement shall be located between 6" and 12" below the bottom of an overlying slab, footing or top of the wall. The upper layers of the soil reinforcement shall also be checked to verify that they have sufficient tensile resistance against traffic barrier impact where applicable.

Soil reinforcement shall be fabricated or designed to avoid piling, drainage structures or other obstacles in the fill without field modifications. Cutting or altering of the basic structural section of either the strip or grid at the site is prohibited unless approved by the Structures Design Section. A minimum clearance of 3" shall be maintained between any obstruction and reinforcement unless otherwise approved by the Structures Design Section. Splicing steel reinforcement is not allowed unless approved by the Structures Design Section.

Submit the following to the engineer for review: complete design calculations, explanatory notes, supporting materials, specifications, and detailed plans and shop drawings for the proposed wall system. Sample analyses and hand output shall be submitted to verify the output by the software. The design calculations and notes shall clearly indicate the Capacity to Demand Ratios (CDR) for all internal stabilities as defined in AASHTO LRFD.

The wall submittal package shall be submitted electronically to the engineer and the Structures Design Section. Submit all required information no later than 30 days prior to beginning construction of the wall. The detailed plans and shop drawings shall include all details, dimensions, quantities and cross-sections necessary to construct the walls.

**B.3 Wall System Components**

Materials furnished for wall system components under this contract shall conform to the requirements of this specification. All certifications related to material and components of the wall systems specified in this subsection shall be submitted to the engineer.

**B.3.1 Steel Components**

All steel components of permanent Wire-Faced MSE walls shall be galvanized in accordance to ASTM A-123. Provide steel reinforcement that meets the following requirements:

- Welded Wire Fabric Soil Reinforcement

Provide shop fabricated welded wire reinforcement from cold drawn steel wire that has a yield stress of 65,000 psi and conforming to the minimum requirements of ASTM A-82 and be welded into the finished configuration in accordance to ASTM A-185. A minimum galvanization coating of 2 oz/ft$^2$ or 3.4 mils thickness is required. Replace welded wire fabric that has been damaged during handling, placing or backfilling at the direction of the engineer, at no expense to the department.

- Steel Reinforcing Strips and Tie Strips

As an alternate to Welded Wire Reinforcing mesh, provide Steel Reinforcing strips or ladder Reinforcing strips or equal, hot-rolled from bars, to the required shape and dimensions meeting the requirements of ASTM A-572 Grade 65 minimum and galvanized to a minimum thickness of 3.4 mils. Tie strips shall be shop fabricated of hot-rolled steel meeting the requirements of ASTM A-1011 Grade 50.

- Welded Wire Fabric Facing Panels

Provide welded wire fabric that is used to fabricate the facings of the wire-Faced wall that has a yield stress of 65,000 psi. All steel shall be shop fabricated of cold drawn steel wire conforming to the minimum requirements of ASTM A-82 and be welded into the finished configuration in accordance to ASTM A-185. Replace welded wire fabric that has been damaged during handling, placing or backfilling at the direction of the engineer, at no expense to the department.

- Fasteners

Galvanized high strength bolts meeting the requirements of AASHTO M164 or equivalent.

- Connector Pins and Mat Bars

Connector pins and mat bars fabricated from cold drawn steel wire meeting the requirements of ASTM A-82 and galvanized to according to ASTM 123 to a minimum thickness of 3.4 mils.

- Metallic Screen

Provide a stainless steel or galvanized steel metallic screen per AASHTO M-111. The metallic screen should have an approximate opening of ¼" and be made of 0.025" (minimum) gauge wire.

**B.3.2 Geotextile Filter Fabric**

Geotextile filter fabric shall be used behind the metallic screen. Use geotextile as recommended by the wall manufacturer. If none is recommended, use Type DF (schedule B) as shown in standard spec 645 or as specified on the contract plans.

**B.3.3 Backfill**

Furnish and place backfill for Wire- Faced MSE wall as shown on the plans and as herein provided.

Provide and use material that consists of natural sand or a mixture of sand with gravel, crushed gravel or crushed stone. It shall not contain foundry sand, bottom ash, blast furnace slag, crushed/recycled concrete, crushed/milled asphaltic concrete or other potentially corrosive material.

Provide material that conforms to the following gradation requirements as per AASHTO T27.

| Sieve Size | % by Weight Passing |
|---|---|
| 1 inch | 100 |
| No. 40 | 0-60 |
| No. 200 | 0-15 |

The material shall have a liquid limit not greater than 25, as per AASHTO T89, and a plasticity index not greater than 6, as per AASHTO T90. Provide the percent by weight, passing the #4 sieve.

In addition, backfill material shall meet the following requirements.

| Test | Method | Value |
|---|---|---|
| pH | AASHTO T-289 | 5 – 10.0 |
| Sulfate content | AASHTO T-290 | 200 ppm max. |
| Chloride content | AASHTO T-291 | 100 ppm max. |
| Electrical Resistivity | AASHTO T-288 | 3000 ohm/cm min. |
| Organic Content | AASHTO T-267 | 1.0% max. |
| Angle of Internal Friction | AASHTO T-236* | 30 degrees min. (At 95.0% of maximum density and optimum moisture, per AASHTO T99, or as modified by C.1) |

*If the amount of P-4 material is greater than 60%, use AASHTO 236 with a standard-size shear box. Test results of this method may allow the use of larger angles of internal friction, up to the maximum allowed by this specification.

If the amount of P-4 material is less than or equal to 60%, two options are available to determine the angle of internal friction. The first method is to perform a fractured faces count, per ASTM 5821, on the R-4 material. If more than 90% of the material is fractured on one face and more than 50% is fractured on two faces, the material meets the specifications and the angle of internal friction can be assumed to be 30 degrees. The second method allows testing all P-1" material, as per AASHTO T-236, with a large shear box. Test results of this second method may allow the use of larger angles of internal friction, up to the maximum allowed by this specification.

Prior to placement of the backfill, obtain and furnish to the engineer a certified report of test results that the backfill material complies with the requirements of this specification. Specify the method used to determine the angle of internal friction. This certified report of test shall be less than 6 months old. Tests will be performed by a certified independent laboratory. In addition, when backfill characteristics and/or sources change, provide a certified report of tests for the new backfill material. Additional certified report of tests (except Angle of Internal Friction test), are also required. These additional backfill tests may be completed at the time of material production or material placement, with concurrence of the engineer. If this additional testing is completed at the time of material production, complete testing for every 2000 cubic yards of backfill or portion thereof. If this additional testing is completed at the time of material placement, complete testing for every 2000 cubic yards of backfill, or portion thereof, used per wall. All certified report of these test results shall be less than 6 months old and performed by a certified independent laboratory.

## C Construction

### C.1 Methods

All excavation and preparation of the foundation for the Wire-Faced Mechanically Stabilized Earth wall shall be in accordance to standard spec 206. The volume of excavation covered is limited to the width of the reinforced mass and to the depth of the bottom of the wall unless shown or noted otherwise on the plan. At the end of each working day, provide good temporary drainage such that the backfill shall not become contaminated with run-off soil or water if it is should rain. Do not stockpile or store any materials or large equipment within 10 feet of the back of the wall.
Stagger vertical joints in the welded wire facing.

Compact all backfill behind the wall as specified in standard spec 207.3.6. Compact the backfill to 95.0% of maximum dry density as determined by AASHTO T-99 or as modified as follows. If the gradation of the granular backfill is such that the P-200 material is less than 7% and the P-40 is less than 30%, a one-point Proctor test can be conducted in place of the 5-point Proctor. To complete this one-point test, compact the sample at a moisture content of 6%, then compute the actual (as-tested) sample moisture after completion of the test. Use Method B or D, and perform this test without removing oversize particles and without correction for coarse particles, as per AASHTO T224. The one-point as-tested moisture content represents the optimum moisture, and the measured one-point density represents the maximum wet density of the material. From these values, the maximum dry density can be computed.

Ensure adequate moisture is present in the backfill during placement and compaction to prevent segregation and to help achieve compaction.

Compaction of backfill within 3 feet of the back face of the wall should be accomplished using lightweight compaction devices. Use of heavy compaction equipment or vehicles should be avoided within 3 feet of the wall face.

Erect welded wire facing and other associated elements according to the wall manufacturer's construction guide. Place and compact the MSE backfill to the level of the next higher layer of MSE reinforcement before placing the MSE reinforcement or connecting it to the wall facing. Place remaining courses in vertical or battered positions as shown on the contract plans.

The MSE reinforcement shall lay horizontally on top of the most recently placed and compacted layer of MSE backfill. Bending of MSE reinforcement that result in a kink in the reinforcement shall not be allowed. If skewing of the reinforcement is required due to obstruction in the reinforced fill, the maximum skew angle shall not exceed 15 degrees from the normal position unless a greater skew angle is shown on the wall shop drawings. The adequacy of the skewed reinforcement in such a case shall be addressed by supporting calculations.

**C.2 Tolerances**

- The overall vertical tolerance of the wall and the horizontal alignment tolerance shall not exceed 2 inches per 10 feet for permanent installations.

- Where a cast-in-place facing or a precast concrete panel facing is installed, the overall vertical tolerance shall not exceed ±1 inch or as shown on the contract plans.

- For battered wire facing, the final deviation from the design batter shall be within ±3/4 inch for each 10 feet of battered wall height.

- The offset limit between consecutive rows of facing shall not exceed one inch.

**C3 Quality Management Program**

**C.3.1 Quality Control Plan**

Submit a comprehensive written quality control plan to the engineer at or before the pre-construction meeting. Do not perform MSE wall construction work before the engineer reviews and accepts the plan. Construct the project as the plan provides.

Do not change the quality control plan without the engineer's review and acceptance. Update the plan with changes as they become effective. Provide a current copy of the plan to the engineer and post in the contractor's laboratory as changes are adopted. Ensure that the plan provides the following elements:

- An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of QC personnel.
- The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication process that will be used, and action time frames.
- A list of source locations, section and quarter descriptions, for all aggregate materials requiring QC testing.
- Descriptions of stockpiling and hauling methods.

- An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.
- Location of the QC laboratory, retained sample storage, and other documentation.
- A summary of the locations and calculated quantities to be tested under this provision.

**C.3.2 Quality Control Personnel**
Perform the quality control sampling, testing, and documentation required under this provision using HTCP certified technicians. Have a HTCP Level I Grading Technician, Level I Aggregate Technician, or Assistant Certified Aggregate Technician (ACT) present at the each grading site during all wall backfill placement, compaction, and nuclear testing activities. Have a HTCP Level I Nuclear Density Technician or Assistant Certified Nuclear Density Technician (ACT) perform field density and field moisture content testing.

If an Assistant Certified Technician (ACT) is performing sampling or testing, a certified technician must coordinate and take responsibility for the work an ACT performs. Have a certified technician ensure that all sampling and testing is performed correctly, analyze test results, and post resulting data. No more than one ACT can work under a single certified technician.

**C.3.3 Equipment**
Furnish the necessary equipment and supplies for performing quality control testing. Ensure that all testing equipment conforms to the equipment specifications applicable to the required testing methods. The engineer may inspect the measuring and testing devices to confirm both calibration and condition. Calibrate all testing equipment according to the CMM and maintain a calibration record at the laboratory.

Furnish nuclear gauges from the department's approved product list at http://www.atwoodsystems.com/materials. Ensure that the gauge manufacturer or an approved calibration service calibrates the gauge the same calendar year it is used on the project. Retain a copy of the calibration certificate with the gauge.

Conform to ASTM D 6938 and CMM 8.15 for density testing and gauge monitoring methods. Perform nuclear gauge measurements using gamma radiation in the backscatter or direct transmission position. Perform each test for 4 minutes of nuclear gauge count time.

Split each Proctor sample and identify so as to provide comparison with the department's test results. Unless the engineer directs otherwise, retain the QC split samples for 14 calendar days and promptly deliver the department's split samples to the department

**C.3.4 Quality Control (QC) Testing**
Perform compaction testing on the backfill. Conform to CMM 8.15 for testing and gauge monitoring methods. Conduct testing at a minimum frequency of 1 test per 150 cubic yards of backfill, or major portion thereof. A minimum of one test for every lift is

required. Deliver documentation of all compaction testing results to the engineer at the time of testing.

Perform 1 gradation test every 750 cubic yards of fill and one 5-point Proctor test (or as modified in C.1) every 2000 cubic yards of fill. Provide the region split samples of both within 72 hours of sampling, at the region laboratory. Test sites shall be selected using ASTM Method D3665. Provide Proctor test results to the engineer within 48 hours of sampling. Provide gradation test results to the engineer within 24 hours of sampling.

### C.3.5 Department Testing

#### C.3.5.1 General

(1) The department will conduct verification testing to validate the quality of the product and independent assurance testing to evaluate the sampling and testing. The department will provide the contractor with a listing of names and telephone numbers of all QV and IA personnel for the project, and provide test results to the contractor within 2 business days after the department obtains the sample.

#### C.3.5.2 Quality Verification (QV) Testing

(1) The department will have an HTCP technician, or ACT working under a certified technician, perform QV sampling and testing. Department verification testing personnel must meet the same certification level requirements specified in C.3.2 for contractor testing personnel for each test result being verified. The department will notify the contractor before sampling so the contractor can observe QV sampling.

(2) The department will conduct QV tests at the minimum frequency of 30% of the required contractor density, Proctor and gradation tests.

(3) The department will locate density tests and gradation samples randomly, at locations independent of the contractor's QC work. The department will split each Proctor and gradation QV sample, testing half for QV, and retaining the remaining half for 10 business days.

(4) The department will conduct QV Proctor and gradation tests in a separate laboratory and with separate equipment from the contractor's QC tests. The department will use the same methods specified for QC testing.

(5) The department will assess QV results by comparing to the appropriate specification limits. If QV test results conform to this special provision, the department will take no further action. If density QV test results are nonconforming, the area shall be reworked until the density requirements of this special provision are met. If the gradation test results are nonconforming, standard spec 106.5 will apply. Differing QC and QV nuclear density values of more than 1.5 pcf will be investigated and resolved. QV density tests will be based on the appropriate QC Proctor test results, unless the QV and QC Proctor result difference is greater than 3.0 pcf. Differing QC and QV Proctor values of more than 3.0 pcf will be investigated and resolved.

### C.3.5.3 Independent Assurance (IA)

(1) Independence assurance is unbiased testing the department performs to evaluate the department's QV and the contractor's QC sampling and testing, including personnel qualifications, procedures, and equipment. The department will perform an IA review according to the department's independent assurance program. That review may include one or more of the following:

1. Split sample testing.
2. Proficiency sample testing.
3. Witnessing sampling and testing.
4. Test equipment calibration checks.
5. Reviewing required worksheets and control charts.
6. Requesting that testing personnel perform additional sampling and testing.

(2) If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend placement until action is taken. Resolve disputes as specified in C.3.5.4.

### C.3.5.4 Dispute Resolution

(1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate sampling and testing procedures, and perform additional testing. Use ASTM E 178 to evaluate potential statistically outlying data.

(2) Production test results, and results from other process control testing, may be considered when resolving a dispute.

(3) If the project personnel cannot resolve a dispute, and the dispute affects payment or could result in incorporating non-conforming product or work, the department will use third party testing to resolve the dispute. The department's central office laboratory, or a mutually agreed on independent testing laboratory, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent laboratory. The department may use third party test results to evaluate the quality of questionable materials and determine the appropriate payment. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

## C.4 Geotechnical Information

Geotechnical data to be used in the design of the wall is given on the wall plan. After completing wall excavation of the entire reinforced soil zone, notify the department and allow the Regional Soils Engineer two working days to review the foundation.

**D Measurement**

The department will not measure Wire Faced Mechanically Stabilized Earth Wall. The department will use pay plan quantity according to the Pay Plan Quantity article. No other measurement of quantities shall be made in the field. Unless the engineer directs in writing, a change to the limits indicated on the contract plan, wall area constructed above or below these limits will not be measured for payment.

**E Payment**

The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0165.4730 | Wall Wire Faced Mechanically Stabilized Earth LRFD/QMP | SF |

Payment is full compensation for supplying a design and shop drawings; preparing the site, including all necessary excavation and disposal of materials; supplying all necessary wall components to produce a functional system constructing the retaining system, including drainage system; providing backfill, backfilling, compacting, developing/completing/documenting the quality management program, performing compaction testing; and for furnishing all tools, labor, equipment, and incidentals necessary to complete the contract work. Parapets, railings, abutment bodies and other items above the wall cap or coping will be paid for separately. Vehicle barrier and its support will be paid separately.

Any required topsoil, fertilizer, seeding or sodding and mulch will be paid for at the contract unit price of topsoil, fertilizer, seeding or sodding and mulch, respectively. (20140716)

## 383. Wall Modular Block Mechanically Stabilized Earth LRFD, Item SPV.0165.4740.

**A Description**

This special provision describes designing, furnishing materials and erecting a permanent earth retention system in accordance to the lines, dimension, elevations and details as shown on the plans and provided in the contract. The design life of the wall and all wall components shall be 75 years.

**B Materials**

**B.1 Proprietary Mechanically Stabilized Earth Modular Block Wall Systems**

The supplied wall system must be from the department's approved list of modular block mechanically stabilized earth wall systems.

Proprietary wall systems may be used for this work, but must conform to the requirements of this specification and be pre-approved for use by the department's Bureau of Structures, Structures Design Section. The department maintains a list of pre-approved systems of retaining walls. To be eligible for use on this project, a system must have been

pre-approved and added to that list prior to the bid opening date. The name of the companies supplying pre-approved material shall be furnished within 25 days after the award of contract.

Applications for pre-approval may be submitted at any time. Applications must be prepared in accordance to the requirements of current Chapter 14 of the department's LRFD Bridge Manual. Information and assistance with the pre-approval process can be obtained by contacting the Structures Design Section in Room 601 of the Hill Farms State Transportation Building in Madison or by calling (608) 266-8494.

**B.2 Design Requirements**

It is the responsibility of the contractor to supply a design and supporting documentation as required by this special provision for review by the department to show the proposed wall design is in compliance with the design specifications.

The design/shop plans shall be prepared on reproducible sheets 11 inch x 17 inch, including borders. Each sheet shall have a title block in the lower right corner. The title block shall include the project identification number and structure number. Design calculations and notes shall be on 8 ½ inch x 11 inch sheets, and shall contain the project identification number, name or designation of the wall, date of preparation, initials of designer and checker, and page number at the top of the page. All plans and calculations shall be signed, sealed and dated by a professional engineer licensed in the State of Wisconsin.

The wall shall be designed for the heights shown on the plans. The design shall be in compliance with the *AASHTO LRFD Design Specifications* 5th *Edition* 2010 (AASHTO LRFD) with latest interim specifications for Mechanically Stabilized Earth Walls, WisDOT's current *Standard Specifications for Highway and Structure Construction (*Standard Specifications), Chapter14 of the WisDOT LRFD Bridge Manual and standard design procedures as determined by the department. Loads, load combinations and load and resistance factors shall be as specified in AASHTO LRFD Section 11. The associated resistance factors shall be defined in accordance to Table 11.5.6-1 in AASHTO LRFD.

The design shall include a minimum overburden surcharge of 100 psf in accordance to Chapter 14 of the WisDOT LRFD Bridge Manual or as shown on the plans. The maximum value of the angle of internal friction of the wall backfill material used for design shall be assumed to be 30 degrees without a certified report of tests. If a certified report of tests yields an angle of internal friction greater than 30 degrees, the larger test value may be used for design, up to a maximum value of 36 degrees.

An external stability check at critical wall stations is performed by the department or its design consultant and the Capacity Demand Ratio (CDR) for sliding, eccentricity, and bearing check is provided by the department or its consultant and shown on the plans.

The design of the Wall Modular Block Mechanically Stabilized Earth shall consider the internal stability of the wall mass (tensile stress, pullout resistance, and tensile stress at the connection with the facing) within each layer of reinforcement for the applicable strength limit and extreme event limit states. Maximum factored loads applied to reinforcements for pullout and the connection to the wall face shall be calculated using the Simplified Method or Coherent Gravity Method, as presented in AASHTO LRFD. In addition, compound stability shall be computed for the applicable strength limit and extreme event limit states in accordance to AASHTO LRFD.

The minimum embedment to the top of the leveling pad shall be as specified in the plans. Potential depth of frost penetration at the wall location shall not be considered in designing the wall for depth of leveling pad.

100% of the soil reinforcement shall be connected to the wall facings. The minimum length of soil reinforcement measured from the back face of the wall shall be equal to 0.7 of the wall height or as shown on the plans. In no case shall this length be less than 8 feet. The soil reinforcement shall extend a minimum of 3 feet beyond the theoretical failure plane in all cases. The maximum vertical spacing of soil reinforcement layers shall be two times the block depth (front face to back face) or 32 inches, whichever is less. The first (bottom) layer of reinforcement shall be placed no further than 12 inches above the top of the leveling pad or the height of the block, but at least one block height above the leveling pad. The last (top) layer of soil reinforcement shall be no further than 21 inches below the top of the uppermost block.

Submit the following to the engineer for review: complete design calculations, explanatory notes, supporting materials, specifications, and detailed plans and shop drawings for the proposed wall system. The design calculations and notes shall clearly indicate the Capacity to Demand Ratios (CDR) for all internal stabilities as defined in AASHTO LRFD.

The wall submittal package shall be submitted electronically to the engineer and Structures Design Section. Submit all required information no later than 30 days prior to beginning construction of the wall. The detailed plans and shop drawings shall include all details, dimensions, quantities and cross-sections necessary to construct the walls.

### B.3 Wall System Components

Materials furnished under this contract shall conform to the requirements of this specification. All certifications related to material and components of the wall systems specified in this subsection shall be submitted to the engineer.

#### B.3.1 Leveling Pad

The leveling pad shall step to follow the general slope of the ground line. The leveling pad steps shall keep the bottom of the wall below the minimum embedment. Additional embedment that is greater than the minimum embedment will not be measured for payment. The leveling pad shall be as wide as the proposed blocks or a minimum of 12 inches, whichever is greater. The bottom row of blocks shall be horizontal and 100% of the block surface shall bear on the leveling pad.

Provide a 6 inches deep by 12 inch (minimum) wide wall leveling pad that consists of poured concrete masonry, Grade A , A-FA, A-S, A-T, A-IS, or A-IP concrete conforming to standard spec 501 as modified in standard spec 716. Provide QMP for leveling pad concrete as specified in the standard spec. A concrete leveling pad shall be provided in following scenarios:

a. When the wall height measured from the top of the leveling pad to the top of the wall exceeds 5 feet at any point along the entire wall length.
b. a structure number has been assigned (such as R-XX-XXX), regardless of wall height.

Additionally, for walls that are less than or equal to 5 feet in height and do not have a wall number assigned to them, a compacted 1 foot deep by 2 foot wide leveling pad made from base aggregate dense 1¼-inch in conformance with standard spec 305 may be used.

### B.3.2 Wall Facing

Wall facing units shall consist of precast modular concrete blocks. All units shall incorporate a mechanism or devices that develop a mechanical connection between vertical block layers. Units that are cracked, chipped, or have other imperfections in accordance to ASTM C1372, or have excessive efflorescence shall not be used within the wall. A single block type and style shall be used throughout each wall. The color and surface texture of the block shall be as given on the plan or chosen by the engineer.

The top course of facing units shall be a solid precast concrete unit designed to be compatible with the remainder of the wall. The finishing course shall be bonded to the underlying facing units with a durable, high strength, flexible adhesive compound compatible with the block material. A formed cast-in-place concrete cap may also be used to finish the wall. A cap of this type shall be designed to have texture, color, and appearance that complement the remainder of the wall. The vertical dimension of the cap shall not be less than 3½ inches. Expansion joints shall be placed in the cap to correspond with each 24 inch change in vertical wall height and at maximum spacing of 10 feet. Concrete for all cast-in-place caps shall be Grade A and shall conform to the requirements of standard spec 501.

Block dimensions may vary no more than ±1/8 inch from the standard values published by the manufacturer in accordance to ASTM C1372. Blocks must have a minimum depth (front face to back face) of 12 inches. The minimum front face thickness of blocks shall be 4 inches measured perpendicular from the front face to inside voids greater than 4 square inches. The minimum allowed thickness of any other portions of the block is 1¾ inches. The front face of the blocks shall conform to plan requirements for color, texture, or patterns.

Cementitious materials and aggregates for modular blocks shall conform to the requirements of ASTM C1372 Section 4.1 and 4.2. Modular blocks shall meet the following requirements.

| Test | Method | Requirement |
|---|---|---|
| Compressive Strength (psi) | ASTM C140 | 5000 min. |
| Water Absorption (%) | ASTM C140 | 6 max. |
| Freeze-Thaw Loss (%)<br>40 cycles, 5 of 5 samples<br>50 cycles, 4 of 5 samples | ASTM C1262[1] | <br>1.0 max.[2]<br>1.5 max.[2] |

[1] Test shall be run using a 3% saline solution.

[2] Test results that meet either of the listed requirements for Freeze-Thaw Loss are acceptable.

All blocks shall be certified as to strength, absorption, and freeze-thaw requirements unless, due to contract changes after letting, certified blocks are not available when required. At the time of delivery of certified blocks, furnish the engineer a certified test report from a department-approved independent testing laboratory for each lot of modular blocks. The certified test report shall clearly identify the firm conducting the sampling and testing, the type of block, the date sampled, the name of the person who conducted the sampling, the represented lot, the number of blocks in the lot, and the specific test results for each of the stated requirements of this specification. The tests should have been conducted not more than 18 months prior to delivery. A lot shall not exceed 5000 blocks or fraction thereof produced in day. The certified test results will represent all blocks within the lot. Each pallet of blocks delivered shall bear lot identification information. Block lots that do not meet the requirements of this specification or blocks without supporting certified test reports will be rejected and shall be removed from the project at no expense to the department.

A department-approved independent testing laboratory shall control and conduct all modular block sampling and testing for certification. Prior to sampling, the manufacturer's representative shall identify all pallets of modular blocks contained in each lot. All pallets of blocks within the lot shall be numbered and marked to facilitate random sample selection.

The representative of the independent testing laboratory shall identify five pallets of blocks by random numbers and shall then select one block from each of these pallets. Solid blocks used as a finishing or top course shall not be selected. The selected blocks shall remain under the control of the person who conducted the sampling until shipped or delivered to the testing laboratory. All pallets of blocks within a lot shall be strapped or wrapped to secure the contents and tagged or marked for identification. The engineer will reject any pallet of blocks delivered to the project without intact security measures. At no expense to the department, the contractor shall remove all rejected blocks from the project.

The department may conduct testing of certified or non-certified modular blocks lots delivered to the project. The department will not conduct freeze-thaw testing on blocks less than 45 days old. If a random sample of five blocks of any lot tested by the department fails to meet any of the requirements of this specification (nonconforming), the contractor shall remove from the project site all blocks from the failed lot not installed in the finished

work at no cost to the department, unless the engineer allows otherwise. Nonconforming blocks installed in the finished work will be considered approved by the department as stated in standard spec 106.5(2) and any adjustment to the contract price will not exceed the price of the blocks charged by the supplier.

**B.3.3 Geogrids**

Geogrid supplied as reinforcing members shall be manufactured from long chain polymers limited to polypropylene, high-density polyethylene, polyaramid, and polyester. Geogrids shall form a uniform rectangular grid of bonded, formed, or fused polymer tensile strands crossing with a nominal right angle orientation. The minimum grid aperture shall be 0.5 inch. The geogrid shall maintain dimension stability during handling, placing, and installation. The geogrid shall be insect, rodent, mildew, and rot resistant. The geogrid shall be furnished in a protective wrapping that shall prevent exposure to ultraviolet radiation and damage from shipping or handling. The geogrid shall be kept dry until installed. Each roll shall be clearly marked to identify the material contained.

The wall supplier shall provide the nominal long-term design strength ($T_{al}$) and nominal long-term connection strength, $T_{alc}$ as discussed below.

Nominal Long-Term Design Strength ($T_{al}$)

The wall supplier shall supply the nominal long-term design strength ($T_{al}$) used in the design for each reinforcement layer and shall be determined by dividing the Ultimate Tensile Strength ($T_{ult}$) by the factors $RF_{ID}$, $RF_{CR}$, $RF_{D}$.

Hence,

$$T_{al} = \frac{T_{ult}}{RF_{ID} \, x \, RF_{CR} \, x \, RF_{D}}$$

where:

$T_{ult}$ = ultimate tensile strength of the reinforcement determined from wide width tensile tests (ASTM D6637) for geogrids based on the minimum average roll value (MARV) for the product

$RF_{ID}$ = strength reduction factor to account for installation damage to the reinforcement. In no case shall $RF_{ID}$ be less than 1.1.

$RF_{CR}$ = strength reduction factor to prevent long-term creep rupture of the reinforcement. In no case shall $RF_{CR}$ be less than 1.2.

$RF_{D}$ = strength reduction factor to prevent rupture of the reinforcement due to chemical and biological degradation. In no case shall $RF_{D}$ be less than 1.1.

Values for $RF_{ID}$, $RF_{CR}$, and $RF_D$ shall be determined from product specific test results. Guidelines for determining $RF_{ID}$, $RF_{CR}$, and $RF_D$ from product specific data are provided in FHWA Publication No. FHWA-NHI-10-024 and FHWA –NHI-10-025 "Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes".

Nominal Long-term Connection Strength $T_{ac}$

The nominal long term connection strength, $T_{ac,}$ shall be based on laboratory geogrid connection tests between wall facing and geogrids. $T_{ac}$ shall be as given below

$$T_{ac} = \frac{T_{ult} * CR_{cr}}{RF_D}$$

where:

$T_{ac}$ = nominal long-term reinforcement facing connection strength per unit reinforcement width at a specified confining pressure

$T_{ult}$ = ultimate tensile strength of the reinforcement for geogrids defined as the minimum average roll value (MARV) for the product

$CR_{cr}$ = long term connection strength reduction factor to account for reduced ultimate strength resulting from connection.

$RF_D$ = strength reduction factor to prevent rupture of the reinforcement due to chemical and biological degradation.

$T_{ac}$ shall be developed from the tests conducted by an independent laboratory on the same facing blocks and geogrids as proposed for the wall and shall cover a range of overburden pressures comparable to those anticipated in the proposed wall. The connection strength reduction factor $CR_{cr}$ shall be determined in accordance to long-term connection test as described in Appendix B of FHWA Publication No. FHWA-NHI 10-025 "Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes". $CR_{cr}$ may also be obtained from the short term connection test meeting the requirements of NCMA test method SRWU-1 in Simac et al 1993 or ASTM D4884.

The contractor shall provide a manufacturer's certificate that the Tult (MARV) of the supplied geogrid has been determined in accordance to ASTM D4595 or ASTM D6637 as appropriate. Contractor shall also provide block to block and block to reinforcement connection test reports prepared and certified by an independent laboratory. Also provide calculations in accordance to AASHTO LRFD, and using the results of laboratory tests, that the block-geogrid connections shall be capable of resisting 100% of the maximum tension load in the soil reinforcements at any level within the wall, for the design life of the wall system.

### B.3.4 Galvanized Metal Reinforcement

In lieu of polymeric geogrid earth reinforcement, galvanized metal reinforcement may be used. Design and materials shall be in accordance to Section 11.10.6.4.2 of the current *AASHTO LRFD* Specifications. The design life of steel soil reinforcements shall also comply with AASHTO LRFD.

### B.3.5 Pins

If pins are used to align modular block facing units, they shall consist of a non-degrading polymer, or hot dipping galvanized steel and be made for the express use with the modular block units supplied, to develop mechanical interlock between facing unit block layers. Connecting pins shall be capable of holding the geogrid in the proper position during backfilling. Furnish documentation that establishes and substantiates the design life of such devices.

### B.3.6 Backfill Materials

Wall Backfill, Type A, shall comply with the requirements for Coarse Aggregate No. 1 as given in standard spec 501.2.5.4.4. All backfill placed within a zone from the base of the leveling pad to the top of the final layer of wall facing units and within 1 foot behind the back face of the wall shall be Wall Backfill, Type A. This includes all material used to fill openings in the wall facing units.

Wall Backfill, Type B, shall comply with the requirements for Grade 1 Granular Backfill as contained in standard spec 209.2.2. All backfill placed in a zone extending horizontally from 1 foot behind the back face of the wall to 1 foot beyond the end of the reinforcement and extending vertically from the base of the leveling pad to the top of the final layer of all facing units shall be Wall Backfill, Type B.

Backfill within the reinforced zone shall meet the following requirements:

| Test | Method | Value |
|---|---|---|
| pH | AASHTO T-289 | 4.5 – 9.0 |
| Sulfate content[1] | AASHTO T-290 | 200 ppm max. |
| Chloride content[1] | AASHTO T-291 | 100 ppm max. |
| Electrical Resistivity[1] | AASHTO T-288 | 3000 ohm/cm min. |
| Angle of Internal Friction | AASHTO T-236 | 30 degrees min. |
| Organic Content[1] | AASHTO T-267 | 1.0% max. |

[1] Requirement does not apply to walls with non-metallic reinforcement.

Prior to placement of the backfill, obtain and furnish to the engineer certified report of test results that the backfill material complies with the requirements of this specification. When backfill characteristics and/or sources change, a certified report of tests must be provided for the new backfill material.

All other backfill materials required to finish the wall and restore the ground surface may be select material available on the project that meets the engineer's approval.

## C Construction

### C.1 General

Place the wall facing units in accordance to the manufacturer's instructions and to the lines, elevations, batter, and tolerances as shown on the plans. Center the initial layer of facing units on the leveling pad; then level them and properly align them. Fill formed voids or openings in the facing units with wall backfill, Type A. Remove all debris on the top of each layer of facing units, before placing the next layer of facing units.

Install all pins, rods, clips, or other devices used to develop mechanical interlock between facing unit layers in accordance to the manufacturer's directions.

All excavation for the Wall Modular Block Mechanically Stabilized Earth shall conform to standard spec 206. At the end of each working day, provide good temporary drainage such that the backfill shall not become contaminated with run-off soil or water if it should rain. Do not stockpile or store materials or large equipment within 10 feet of the back face of the wall.

### C.2 Backfill

Place backfill materials in the areas as indicated on the plans and as detailed in this specification. Backfill lifts shall be no more than 8-inches in depth. Backfilling shall closely follow erection of each course of wall facing units. Compact wall backfill Type A with at least three passes of lightweight manually operated compaction equipment acceptable to the engineer.

Compact wall backfill Type B as specified in standard spec 207.3.6. Compact Wall Backfill Type B to 95.0% of maximum density as determined by AASHTO T-99, Method C. Perform compaction testing on the backfill. When performing nuclear testing, use a nuclear gauge from the department's approved list, ensure that the operator is a HTCP certified Nuclear Density Technician I, and conform to CMM 8.15 for testing and gauge monitoring methods. Conduct testing at a minimum frequency of 1 test per 2 feet of vertical wall height, per 200 feet length of wall, or major portion thereof. A minimum of one test for every 2-foot layer of vertical wall height is required. Test sites shall be selected using ASTM Method D3665. Deliver documentation of all compaction testing results to the engineer at the time of testing.

Conduct backfilling operations in such a manner as to prevent damage or misalignment of the wall facing units, soil reinforcement, or other wall components. At no expense to the department, correct any such damage or misalignment as directed by the engineer. A field representative of the wall supplier shall be available during wall construction to provide technical assistance to the contractor and the engineer.

Place and compact the MSE backfill to the level of the next higher layer of MSE reinforcement before placing the MSE reinforcement or connecting it to the wall facing. The MSE reinforcement shall lay horizontally on top of the most recently placed and compacted layer of MSE backfill.

Do not operate tracked or wheeled equipment on the backfill within 3 feet from the back face of modular blocks. The engineer may order the removal of any large or heavy equipment that may cause damage or misalignment of the wall facing units.

**C.3 Soil Reinforcement**

Place soil reinforcement at the positions and to the lengths as indicated on the accepted shop drawings. Take care that backfill placement over the positioned soil reinforcement elements does not cause damage or misalignment of these elements. Correct any such damage or misalignment as directed by the engineer. Do not operate wheeled or tracked equipment directly on the soil reinforcement. A minimum cover of 6 inches is required before such operation is allowed.

**C.4 Geogrid Layers**

Place and anchor geogrid material between wall unit layers in the same manner as used to determine the Geogrid Block-to-Connection Strength. Place the grid material so that the machine direction of the grid is perpendicular to the wall face. Each grid layer shall be continuous throughout the lengths indicated on the plans. Join grid strips with straps, rings, hooks or other mechanical devices to prevent movement during backfilling operations. Prior to placing backfill on the grid, pull the grid taunt and hold in position with pins, stakes or other methods approved by the engineer.

**C.5 Steel Layers**

Place the steel reinforcement full width in one piece as shown on the plans. No splicing will be allowed. Maintain elements in position during backfilling.

**C.6 Geotechnical Information**

Geotechnical data to be used in the design of the wall is given on the wall plan. After completion of wall excavation, notify the department and allow two days for the Regional Soil Engineer to review the foundation.

**D Measurement**

The department will not measure Wall Modular Block Mechanically Stabilized Earth LRFD. The department will use pay plan quantity according to the Pay Plan Quantity article. No other measurement of quantities shall be made in the field unless the engineer directs in writing a change to the limits indicated on the contract plans.

**E Payment**

The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0165.4740 | Wall Modular Block Mechanically Stabilized Earth LRFD | SF |

Payment is full compensation for supplying a design and shop drawings; preparing the site, including all necessary excavation and disposal of surplus materials; supplying all necessary wall components to produce a functional system including cap, copings and leveling pad; constructing the retaining system and wall drainage systems if applicable; providing backfill, backfilling and compacting, and performing compaction testing; and for furnishing all tools, labor, equipment, and incidentals necessary to complete the contract work. Parapets, railings, and other items above the wall cap or coping will be paid for separately.

Any required topsoil, fertilizer, seeding or sodding and mulch will be paid for at the contract unit price of topsoil, fertilizer, seeding or sodding and mulch, respectively.
LRFD 532-031S (071612)

## 384. Wall Concrete Panel With Traffic Barrier Mechanically Stabilized Earth LRFD/QMP, Item SPV.0165.4750.

**A Description**

This special provision describes designing, furnishing materials and erecting a permanent earth retention system in accordance to the lines, dimension, elevations and details as shown on the plans and provided in the contract. The design life of the mechanically stabilized earth (MSE) wall with integrated traffic barrier and all wall components shall be 75 years minimum.

This special provision describes the quality management program (QMP) for MSE walls. A quality management program is defined as all activities, including process control, inspection, sampling and testing, and necessary adjustments in the process that are related to the construction of the MSE wall, which meets all the requirements of this provision.

This special provision describes contractor quality control (QC) sampling and testing for backfill density testing, compaction, documenting those results, and documenting related production and placement process changes. This special provision also describes department quality verification (QV), independent assurance (IA), and dispute resolution.

Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes sampling and testing procedures. The contractor may obtain the CMM from the department's web site at:
http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/rdwy/cmm.aspx

## B Materials

### B.1 Proprietary Mechanically Stabilized Earth Concrete Panel Wall Systems

The supplied precast panel wall system with integrated traffic barrier must be provided by one of the same manufacturers of the department's approved list of Concrete Panel Mechanically Stabilized Earth Wall systems (Concrete Panel MSE Walls).

Proprietary wall systems may be used for this work, but must conform to the requirements of this specification and designed and manufactured by the same manufacturer of proprietary mechanically stabilized earth concrete panel wall systems pre-approved for use by the department's Bureau of Structures, Structures Design Section. The department maintains a list of pre-approved Concrete Panel Mechanically Stabilized Earth Wall systems. To be eligible for use on this project, a MSE concrete panel wall system with an integrated traffic barrier must be manufactured by the one of same manufacturers of pre-approved Concrete Panel Mechanically Stabilized Earth Wall systems and on the pre-approved list prior to the bid opening date. The name of the pre-approved proprietary wall system selected shall be furnished to the engineer within 25 days after the award of contract. The location of the plant manufacturing the concrete panels with integrated traffic barrier shall be furnished to the engineer at least 14 days prior to the start of panel production.

To receive pre-approval, the retaining wall system must comply with all pertinent requirements of this provision. Applications for pre-approval may be submitted at any time. Applications must be prepared in accordance to the requirements of Chapter 14 of the department's LRFD Bridge Manual. Information and assistance with the pre-approval process can be obtained by contacting the Structures Design Section in Room 601 of the Hill Farms State Transportation Building in Madison or by calling (608) 266-8494.

### B.2 Design Requirements

It is the responsibility of the contractor to supply a design and supporting documentation as required by this special provision, for review by the department, to show the proposed wall design is in compliance with the design specifications. Four copies of the following shall be submitted to the engineer for review and acceptance no later than 60 days from the date of notification to proceed with the project.

The plans and shop drawings shall be prepared on reproducible sheets 11 inch x 17 inch, including borders. Each sheet shall have a title block in the lower right corner. The title block shall include the project identification number and structure number. Design calculations and notes shall be on 8 ½ inch x 11 inch sheets, and shall contain the project identification number, name or designation of the wall, date of preparation, initials of designer and checker, and page number at the top of the page. All plans, shop drawings, and calculations shall be signed, sealed and dated by a professional engineer licensed in the State of Wisconsin.

The design of the Concrete Panel MSE wall shall be in compliance with the *AASHTO LRFD Bridge Design Specifications 5th Edition 2010*, (AASHTO LRFD) with latest interim specifications for Mechanically Stabilized Earth Walls, WisDOT's current *Standard Specifications for Highway and Structure Construction* (Standard Specifications), Chapter 14 of the WisDOT LRFD Bridge Manual and standard engineering design procedures as determined by the department. Loads, load combinations, load and resistance factors shall be as specified in AASHTO LRFD Section 11. The associated resistance factors shall be defined in accordance to Table11.5.6-1 LRFD.

Design and construct the walls in accordance to the lines, grades, heights and dimensions shown on the plans, as herein specified, and as directed by the engineer. Where walls or wall sections intersect with an included angle of 130 degrees or less, a vertical corner element separate from the standard panel face shall abut and interact with the opposing standard panels. The corner element shall have ground reinforcement connected specifically to that panel and shall be designed to preclude lateral spread of the intersecting panels. If the wall is installed in front of a bridge abutment or wing, it shall also be designed to resist the applied abutment/bridge lateral forces specified on the contract plans.

Walls parallel to supporting highway traffic shall be designed for the effects of highway surcharge loading equivalent of 2 feet soil surcharge weight or 240 psf. The design shall also consider the traffic barrier impact as specified hereinafter. Walls that do not carry highway traffic shall be designed for a live load surcharge of 100 psf in accordance to Chapter 14 of the WisDOT LRFD Bridge Manual or as stated on the plans.

Provide an integrated barrier on top of the wall with barrier height and shape of the traffic face as detailed on the plans. Design the traffic barrier to resist design impact forces given in AASHTO LRFD Table A13.2-1, to the Railing Test Level indicated on the plans. Distribute the barrier impact loads through the barrier to the upper rows of soil reinforcement according to AASHTO LRFD. Provide supporting design calculations of the entire wall system and individual wall components to meet the required traffic barrier impact resistance.

A maximum value of the angle of internal friction of the wall backfill material used for design shall be assumed to be 30 degrees without a certified report of tests. If a certified report of tests yields an angle of internal friction greater than 30 degrees, the larger test value may be used for design, up to a maximum value of 36 degrees.

An external stability check at critical wall stations showing Capacity Demand Ratios (CDR) for sliding, eccentricity, and bearing checks is performed by the department and are provided on the wall plans. If the contractor utilizes an angle of internal friction greater than 30 degrees for the design, external stability checks at critical wall stations showing Capacity Demand Ratios (CDR) for sliding, eccentricity, and bearing checks are required to be analyzed by the contractor.

The design of the Concrete Panel With Traffic Barrier Mechanically Stabilized Earth Wall by the contractor shall consider the internal and compound stability of the wall mass in accordance to AASHTO LRFD 11.10.6. The internal stability shall include soil reinforcement pullout, soil reinforcement rupture, and panel-reinforcement connection failure at each soil reinforcement level. The design shall be performed using the Simplified Method or Coherent Gravity Method. Calculations for factored stresses and resistances shall be based upon assumed conditions at the end of the design life. Compound stability shall be computed for the applicable strength limits.

Facing panels shall meet the design requirements of AASHTO LRFD 11.10.2.3. The Facing panels shall also be designed to resist compaction stresses that occur during the wall erection. The minimum thickness of the Facing panel shall be 5.5 inches. The surface area of a standard single panel cannot exceed 100 square feet. The maximum height of a standard panel shall be 10 feet not including the height of the traffic barrier on top of the panel. The design of the steel reinforcement within the panels shall be based on one-way bending action. Design the wall panels and joints between panels to accommodate a maximum differential settlement of 1 foot over a 100-foot length, unless the plans indicate other.

The minimum length of soil reinforcement measured from the back face of the wall shall be equal to 0.7 times the wall height or as shown on the plan. In no case shall this length be less than 8 feet. The soil reinforcement length shall be the same from the bottom to the top of the wall. The soil reinforcement shall extend a minimum of 3.0 feet beyond the theoretical failure plane in all cases. The maximum vertical spacing of soil reinforcement layers shall be 31 inches. The uppermost layer of the reinforcement shall be located between 6 inches and 18 inches below the bottom of an overlying slab, footing or top of the wall. The upper layers of the soil reinforcement shall also be checked to verify that they have sufficient tensile resistance against traffic barrier impact where applicable.

All soil reinforcement steel required for the reinforced soil zone shall be connected to the face panels. The reinforcement and the reinforcement/facing connection strength shall be designed to resist maximum factored reinforcement loads in accordance to AASHTO LRFD Section 11.10.6. Facing connection strength shall be defined as the resistance factor times the failure load, or the load at 0.5 inch deformation times 0.9, whichever is less. The nominal long term design strength in steel reinforcement and connections shall be based upon assumed conditions at the end of the design life.

Soil reinforcement shall be prefabricated into single or multiple elements before galvanizing. Soil reinforcement shall be fabricated or designed to avoid piling, drainage structures or other obstacles in the fill without field modifications. Cutting or altering of the basic structural section of either the strip or grid at the site is prohibited unless approved by the Structures Design Section. A minimum clearance of 3” shall be maintained between any obstruction and reinforcement unless otherwise approved by the Structures Design Section. Splicing steel reinforcement is not allowed, unless approved by the Structures Design Section.

MSE facing panels shall be installed on concrete leveling pads. The minimum cross section of the leveling pad shall be 6-inches deep by 1-foot wide. Potential depth of frost penetration at the wall location shall not be considered in designing the wall for depth of leveling pad.

Submit the following to the engineer for review: complete design calculations, explanatory notes, supporting materials, specifications, and detailed plans and shop drawings for the proposed wall system. Sample analyses and hand output shall be submitted to verify the output by the software. The design calculations and notes shall clearly indicate the Capacity to Demand Ratios (CDR) for all internal stabilities as defined in AASHTO LRFD.

The wall submittal package shall be submitted electronically to the engineer and Structures Design Section. Submit all required information no later than 30 days prior to beginning construction of the wall. The detailed plans and shop drawings shall include all details, dimensions, quantities and cross-sections necessary to construct the walls.

**B.3 Wall System Components**

Materials furnished for wall system components under this contract shall conform to the requirements of this specification. All certifications related to material and components of the wall systems specified in this subsection shall be submitted to the engineer.

**B.3.1 General**

The walls shall have modular precast concrete face panels produced by a wet cast process, and have cast-in-place concrete pads or footings. The concrete panels shall have a minimum strength of 4000 psi at 28 days. The concrete for the panels shall be air entrained, with an air content of 6% +/- 1.5%. All materials for the concrete mixture for the panels shall meet the requirements of standard spec 501. The panel edges shall be configured so as to conceal the joints. The detail shall be a shiplap, tongue and groove or other detail adequate to prevent vandalism or ultraviolet light damage to the backside of the wall joint covering. Joints between panels shall be no more than 0.75 inch. Use full wall height slip joints at points of differential settlement when detailed on the plan. Horizontal joints must be provided with a compressible bearing material to prevent concrete to concrete contact.

A minimum of two bearing pads shall be used per panel. The allowable bearing stress shall not exceed 900 psi. The bearing pads shall be preformed EPDM rubber conforming to ASTM D-2000, Grade 2, Type A, Class A with a minimum Durometer Hardness of 80, or high- density polyethylene pads with a minimum density of 0.034 $lb/in^3$ in accordance to ASTM 1505.

An 18-inch wide geotextile shall be used on the backface of the wall panels to cover all panel joints. The geotextile shall meet the physical requirements stated in standard spec 645.2.4 for Geotextile Fabric, Type DF, Schedule B, except that the grab tensile strength shall be a minimum of 180 pounds in both the machine and cross-machine directions. The geotextile shall be attached with a standard construction adhesive suitable for use on

concrete surfaces and cold temperatures. The adhesive shall be applied to the panels, not to the geotextile.

When Alternate Wall Backfill Type B (Coarse Aggregate No.1) is used in the reinforced zone as backfill, as required for construction during freezing weather, a geotextile shall be placed to separate the Alternate Wall Backfill Type B from the retained soil. If the wall is constructed in stages where portions of wall backfill consist of Wall Backfill Type A and adjacent portions consist of Alternate Wall Backfill Type B (Coarse Aggregate No.1), a geotextile must also be placed at the interface of and between the two different backfill materials for the entire height of the backfill to prevent migration of finer soil. The geotextile shall also be placed on top of the Alternate Wall Backfill Type B to provide separation from the fill above the wall reinforced zone. Adjoining sections of geotextile should be overlapped by a minimum of 12 inches. The geotextile shall meet the physical requirements stated in standard spec 645.2.4 for Geotextile Fabric, Type DF, Schedule B. Where geotextile is used it cannot be placed directly on top of wall reinforcement and it must be placed at one-half of the backfill lift thickness over the reinforcement.

Do not alternate wall backfill types along the height of the wall. Sloping of the Alternate Wall Backfill Type B from the top of the reinforced earth zone down to the leveling pad is acceptable as required for staging and as approved by the engineer. The section C.2 compaction requirements must be satisfied for this interim condition. Temporary shoring return walls, such as wire face MSE walls, are acceptable as approved by the engineer.

All steel portions of the wall system exposed to earth shall be galvanized. All soil reinforcement and attachment devices shall be carefully inspected to ensure they are true size and free from defects that may impair the strength and durability.

For cast in place sections of cap and coping, use poured concrete masonry Grade A, A-FA, A-S, A-T, A-IS or A-IP concrete conforming to standard spec 501 as modified in standard spec 716. Provide QMP for cast in place cap and coping concrete as specified in standard spec 716, Class II Concrete.

Use a wall leveling pad that consists of poured concrete masonry, Grade A, A-FA, A-S, A-T, A-IS or A-IP concrete conforming to standard spec 501 as modified in standard spec 716. Provide QMP for leveling pad concrete as specified in standard spec 716, Class III Concrete.

The minimum embedment to the top of the leveling pad shall be 1 foot 6 inches or as given on the plan or given in AASHTO LRFD 11.10.2.2 whichever is greater. Step or slope the leveling pad to follow the required profile grade of the toe of the integrated traffic barrier. If stepped, the leveling pad's steps shall keep the bottom of the wall within one half the panel heights of the minimum embedment i.e. the minimum embedment plus up to one half the height of one panel. Additional embedment may be detailed by the contractor, but will not be measured for payment.

**B.3.2 Backfill**

Furnish and place backfill for mechanically stabilized earth concrete panel walls as shown on the plans and as hereinafter provided. The same backfill material must be used for the entire wall height, from the leveling pad to top of finished reinforced earth zone, for each stage of wall construction. For the purposes of this special provision, a stage is defined as constructing a full-height portion of wall along the wall alignment, not staging wall construction up the height of the wall. Horizontal changes in backfill strata up the height of the wall will not be allowed.

In addition to gradation requirements hereinafter provided, backfill material within the reinforced zone shall meet the following requirements.

| Test | Method | Value |
|---|---|---|
| pH | AASHTO T-289 | 5 – 10.0 |
| Sulfate content | AASHTO T-290 | 200 ppm max. |
| Chloride content | AASHTO T-291 | 100 ppm max. |
| Electrical Resistivity | AASHTO T-288 | 3000 ohm/cm min. |
| Organic Content | AASHTO T-267 | 1.0% max. |
| Angle of Internal Friction | AASHTO T-236* | 30 degrees min. (At 95.0% of maximum density and optimum moisture, per AASHTO T99, or as modified by C.2.) |

*If the amount of P-4 material is greater than 60%, use AASHTO 236 with a standard-size shear box. Test results of this method may allow the use of larger angles of internal friction, up to the maximum allowed by this specification.

If the amount of P-4 material is less than or equal to 60%, two options are available to determine the angle of internal friction. The first method is to perform a fractured faces count, per ASTM 5821, on the R-4 material. If more than 90% of the material is fractured on one face and more than 50% is fractured on two faces, the material meets the specifications and the angle of internal friction can be assumed to be 30 degrees. The second method allows testing all P-1” material, as per AASHTO T-236, with a large shear box. Test results of this second method may allow the use of larger angles of internal friction, up to the maximum allowed by this specification.

Prior to placement of the backfill, obtain and furnish to the engineer a certified report of test results that the backfill material complies with the requirements of this specification.

Specify the method used to determine the angle of internal friction. This certified report of test shall be less than 6 months old. Tests will be performed by a certified independent laboratory. In addition, when backfill characteristics and/or sources change, provide a certified report of tests for the new backfill material. Additional certified reports of tests (except Angle of Internal Friction test), are also required. These additional backfill tests may be completed at the time of material production or material placement, with concurrence of the engineer. If this additional testing is completed at the time of material production, complete testing for every 2000 cubic yards of backfill or portion thereof. If this additional testing is completed at the time of material placement, complete testing for every 2000 cubic yards of backfill, or portion thereof, used per wall. All certified report of test results shall be less than 6 months old and performed by a certified independent laboratory.

**B.3.2.1 Wall Backfill Type A**

For typical wall backfill, provide and use backfill that consists of natural sand or a mixture of sand with gravel, crushed gravel or crushed stone. It shall not contain recycled or milled asphalt, recycled concrete, foundry sand, bottom ash, blast furnace slag or other potentially corrosive material.

Provide material conforming to the following gradation requirements as per AASHTO T27.

| Sieve Size | Percentage by Weight Passing |
|---|---|
| 1 inch | 100 |
| No. 40 | 0 - 60 |
| No. 200 | 0 - 15 |

The material shall have a liquid limit not greater than 25, as per AASHTO T89, and a plasticity index not greater than 6, as per AASHTO T90. Provide the percent by weight, passing the #4 sieve.

**B.3.2.2 Wall Backfill Type B**

If the project schedule is such that the wall must be constructed during freezing weather, the engineer may allow use of alternate wall backfill materials. The alternate wall backfill materials will only be utilized when approved by the engineer. Alternate Wall Backfill, Type B shall comply with the requirements for Coarse Aggregate No.1 as given in standard spec 501.2.5.4.4. The alternate wall backfill must consist of crushed stone or crushed gravel.

For Alternate Wall Backfill, Type B, provide material conforming to the following gradation requirements as per WisDOT Standard Specifications for Highway and Structure Construction.

| Sieve Size | Percentage by Weight Passing |
|---|---|
| | Size No. 1 Coarse Aggregate, Standard spec 501.2.5.4.4 |
| 1” | 100 |
| ¾” | 90-100 |
| 3/8” | 20-55 |
| #4 | 0-10 |
| #8 | 0-5 |

## C Construction

### C.1 Excavation and Backfill

Excavation will encompass preparing the leveling pad foundation and the area below the reinforcing strips in accordance to standard spec 206. The volume of excavation covered is limited to the width of the reinforced mass and to the depth of the leveling pad unless shown or noted otherwise on the plan. At the end of each working day, provide good temporary drainage such that the backfill shall not become contaminated with run-off soil or water if it should rain. Do not stockpile or store materials or large equipment within 10 feet of the back of the wall.

**C.2 Compaction** Compact all backfill behind the wall as specified in standard spec 207.3.6. Compact the backfill to 95.0% of maximum dry density as determined by AASHTO T-99 (modified to compute densities to the nearest 0.1 pcf), or as modified as follows. If the gradation of the granular backfill is such that the P-200 material is less than 7% and the P-40 is less than 30%, a one-point Proctor test can be conducted in place of the 5-point Proctor. To complete this one-point test, compact the sample at a moisture content of 6%, then compute the actual (as-tested) sample moisture after completion of the test. Use Method B or D, and perform this test without removing oversize particles and without correction for coarse particles, as per AASHTO T224. The one-point as-tested moisture content represents the optimum moisture, and the measured one-point density represents the maximum wet density of the material. From these values, the maximum dry density can be computed.

If the engineer allows and approves use of alternate wall backfill material, the compaction of Alternate Wall Backfill Type B (Coarse Aggregate No.1) should be performed with at least three passes of a vibratory compactor in two mutually perpendicular directions (at least 6 passes total), such that with additional compactive effort, no further densification is obtained as visually determined by the engineer. If additional densification is observed after three passes in the two directions, then the material must be re-compacted until no further visual densification is observed. The initial three passes of the compactor must be in the direction parallel to the wall alignment followed by the three passes in the direction perpendicular to the wall alignment. Density testing is not required for Alternate Wall Backfill Type B.

Ensure adequate moisture is present in the backfill during placement and compaction to prevent segregation and to help achieve compaction.

Compaction of backfill within 3 feet of the back face of the wall should be accomplished using lightweight compaction devices. Use of heavy compaction equipment or vehicles should be avoided within 3 feet of the panels.

Place and compact the MSE backfill to the level of the next higher layer of MSE reinforcement before placing the MSE reinforcement or connecting it to the wall facing. The MSE reinforcement shall lay horizontally on the top of the most recently placed and compacted layer of MSE backfill. Bending of MSE reinforcement that result in a kink in the reinforcement shall not be allowed. If skewing of the reinforcement is required due to obstructions in the reinforced fill, the maximum skew angle shall not exceed 15 degrees from the normal position unless a greater angle is shown on the plans. The adequacy of the skewed reinforcement in such a case shall be addressed by supporting calculations.

### C.3 Panel Tolerances

As backfill material is placed behind a panel, maintain the panel in its proper inclined position according to the supplier specifications and as approved by the engineer. The supplier shall specify the back batter so that the final position of the wall is vertical. Vertical tolerances and horizontal alignment tolerances shall not exceed ¾-inch when measured along a 10-foot straight edge. The maximum allowable offset in any panel joint shall be ¾-inch. The overall vertical tolerance of the wall (plumbness from top to bottom) shall not exceed ½-inch per 10 feet of wall height. Erect the precast face panels to ensure that they are located within 1 inch from the contract plan offset at any location to ensure proper wall location at the top of the wall. Provide a ¾-inch joint separation between all adjacent face panels to prevent direct concrete-to-concrete contact. Maintain this gap by the use of bearing pads and/or alignment pins. Failure to meet this tolerance shall cause the engineer to require the contractor to disassemble and re-erect the affected portions of the wall. In addition, imperfect molding, honeycombing, cracking or severe chipping of panels shall be cause of panel rejection.

### C.4 Quality Management Program

#### C.4.1 Quality Control Plan

Submit a comprehensive written quality control plan to the engineer at or before the pre-construction meeting. Do not perform MSE wall construction work before the engineer reviews and accepts the plan. Construct the project as the plan provides.

Do not change the quality control plan without the engineer’s review and acceptance. Update the plan with changes as they become effective. Provide a current copy of the plan to the engineer and post in the contractor’s laboratory as changes are adopted. Ensure that the plan provides the following elements:

- An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of QC personnel.
- The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication process that will be used, and action time frames.
- A list of source locations, section and quarter descriptions, for all aggregate materials requiring QC testing.
- Descriptions of stockpiling and hauling methods.
- An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.
- Location of the QC laboratory, retained sample storage, and other documentation.
- A summary of the locations and calculated quantities to be tested under this provision.

**C.4.2 Quality Control Personnel**

Perform the quality control sampling, testing, and documentation required under this provision using HTCP certified technicians. Have a HTCP Level I Grading Technician, Level I Aggregate Technician, or Assistant Certified Aggregate Technician (ACT) present at the each grading site during all wall backfill placement, compaction, and nuclear testing activities. Have a HTCP Level I Nuclear Density Technician or Assistant Certified Nuclear Density Technician (ACT) perform field density and field moisture content testing. The HTCP Level I Grading Technician, Level I Aggregate Technician, or Assistant Certified Aggregate Technician (ACT) must also be present to document and confirm the required number of passes of the compaction equipment for the Alternate Wall Backfill Type B during wall backfill placement and compaction activities.

If an Assistant Certified Technician (ACT) is performing sampling or testing, a certified technician must coordinate and take responsibility for the work an ACT performs. Have a certified technician ensure that all sampling and testing is performed correctly, analyze test results, and post resulting data. No more than one ACT can work under a single certified technician.

**C.4.3 Equipment**

Furnish the necessary equipment and supplies for performing quality control testing. Ensure that all testing equipment conforms to the equipment specifications applicable to the required testing methods. The engineer may inspect the measuring and testing devices to confirm both calibration and condition. Calibrate all testing equipment according to the CMM and maintain a calibration record at the laboratory.

Furnish nuclear gauges from the department's approved product list at http://www.atwoodsystems.com/materials. Ensure that the gauge manufacturer or an approved calibration service calibrates the gauge the same calendar year it is used on the project. Retain a copy of the calibration certificate with the gauge.

Conform to ASTM D 6938 and CMM 8.15 for density testing and gauge monitoring methods. Perform nuclear gauge measurements using gamma radiation in the backscatter or direct transmission position. Perform each test for 4 minutes of nuclear gauge count time.

Split each Proctor sample and identify so as to provide comparison with the department's test results. Unless the engineer directs otherwise, retain the QC split samples for 14 calendar days and promptly deliver the department's split samples to the department

**C.4.4 Quality Control (QC) Testing**

Perform compaction testing on the backfill. Conform to CMM 8.15 for testing and gauge monitoring methods. Conduct density testing at a minimum frequency of 1 test per 150 cubic yards of backfill, or major portion thereof. A minimum of one test for every lift is required. Deliver documentation of all compaction testing results to the engineer at the time of testing. Density testing is not required for Alternate Wall Backfill Type B.

Perform 1 gradation test every 750 cubic yards of fill and one 5-point Proctor test (or as modified in C.2) every 2000 cubic yards of fill. Provide the region split samples of both within 72 hours of sampling, at the region laboratory. Test sites shall be selected using ASTM Method D3665. Provide Proctor test results to the engineer within 48 hours of sampling. Provide gradation test results to the engineer within 24 hours of sampling.

Observe the compaction and densification process for the Alternate Wall Backfill Type B. The material must be compacted using the minimum number of passes of the compaction equipment until no further densification is obtained as visually determined. Provide documentation that the compaction met the required number of passes of the compaction equipment for the Alternate Wall Backfill Type B.

**C.4.5 Department Testing**

**C.4.5.1 General**

(1) The department will conduct verification testing to validate the quality of the product and independent assurance testing to evaluate the sampling and testing. The department will provide the contractor with a listing of names and telephone numbers of all QV and IA personnel for the project, and provide test results to the contractor within 2 business days after the department obtains the sample.

**C.4.5.2 Quality Verification (QV) Testing**

(1) The department will have an HTCP technician, or ACT working under a certified technician, perform QV sampling and testing. Department verification testing personnel must meet the same certification level requirements specified in C.4.2 for contractor testing personnel for each test result being verified. The department will notify the contractor before sampling so the contractor can observe QV sampling.

(2) The department will conduct QV tests at the minimum frequency of 30% of the required contractor density, Proctor and gradation tests.

(3) The department will locate density tests and gradation samples randomly, at locations independent of the contractor's QC work. The department will split each Proctor and gradation QV sample, testing half for QV, and retaining the remaining half for 10 business days.

(4) The department will conduct QV Proctor and gradation tests in a separate laboratory and with separate equipment from the contractor's QC tests. The department will use the same methods specified for QC testing.

(5) The department will assess QV results by comparing to the appropriate specification limits. If QV test results conform to this special provision, the department will take no further action. If density QV test results are nonconforming, the area shall be reworked until the density requirements of this special provision are met. If the gradation test results are nonconforming, standard spec 106.5 will apply. Differing QC and QV nuclear density values of more than 1.5 pcf will be investigated and resolved. QV density tests will be based on the appropriate QC Proctor test results, unless the QV and QC Proctor result difference is greater than 3.0 pcf. Differing QC and QV Proctor values of more than 3.0 pcf will be investigated and resolved.

(6) The department will also provide personnel to be onsite and confirm the required number of passes of the compaction equipment for the Alternate Wall Backfill Type B during wall backfill placement and compaction activities on a random basis. This work does not relieve the contractor of the responsibility to observe and document fill placement and compaction as required in C.4.2 and C.4.4.

**C.4.5.3 Independent Assurance (IA)**

(1) Independence assurance is unbiased testing the department performs to evaluate the department's QV and the contractor's QC sampling and testing, including personnel qualifications, procedures, and equipment. The department will perform an IA review according to the department's independent assurance program. That review may include one or more of the following:

1. Split sample testing.
2. Proficiency sample testing.
3. Witnessing sampling and testing.
4. Test equipment calibration checks.
5. Reviewing required worksheets and control charts.
6. Requesting that testing personnel perform additional sampling and testing.

(2) If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend placement until action is taken. Resolve disputes as specified in C.4.5.4.

**C.4.5.4 Dispute Resolution**

(1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur,

seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate sampling and testing procedures, and perform additional testing. Use ASTM E 178 to evaluate potential statistically outlying data.

(2) Production test results, and results from other process control testing, may be considered when resolving a dispute.

(3) If the project personnel cannot resolve a dispute, and the dispute affects payment or could result in incorporating non-conforming product or work, the department will use third party testing to resolve the dispute. The department's central office laboratory, or a mutually agreed on independent testing laboratory, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent laboratory. The department may use third party test results to evaluate the quality of questionable materials and determine the appropriate payment. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

**C.5 Geotechnical Information**

Geotechnical data to be used in the design of the wall is given on the wall plan. After completing wall excavation of the entire reinforced soil zone, notify the department and allow the Regional Geotechnical Engineer two working days to review the foundation.

**D Measurement**

The department will not measure Wall Concrete Panel With Traffic Barrier Mechanically Stabilized Earth LRFD/QMP. The department will use pay plan quantity according to the Pay Plan Quantity article. No measurement of quantities shall be made in the field. Unless the engineer directs in writing, a change to the limits indicated on the contract plan, wall area constructed above or below these limits will not be measured for payment.

**E Payment**

The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0165.4750 | Wall Concrete Panel With Traffic Barrier Mechanically Stabilized Earth LRFD/QMP | SF |

Payment is full compensation for supplying a design and shop drawings; preparing the site, including all necessary excavation and disposal of materials; supplying all necessary wall components to produce a functional system including cap and copings; constructing the retaining system including integral traffic barrier on the top of the wall, providing backfill (Type A or Type B), backfilling, compacting, developing/completing/documenting the quality management program, performing compaction testing/observation. Any temporary return walls, such as a wire face MSE wall, required to facilitate construction of a portion of wall with Backfill Type B is incidental to this bid item.

Any required topsoil, fertilizer, seeding or sodding and mulch will be paid for at the contract unit price of topsoil, fertilizer, seeding or sodding and mulch, respectively.

## 385. Wall Concrete Panel with Traffic Barrier Mechanically Stabilized Earth LRFD/LFCF, Item SPV.0165.4760.

### A Description

This special provision describes designing, furnishing materials and erecting a permanent earth retention system in accordance to the lines, dimension, elevations and details as shown on the plans and provided in the contract. The design life of the mechanically stabilized earth (MSE) wall with integrated traffic barrier and all wall components shall be 75 years minimum.

This special provision describes using Lightweight Foamed Concrete Fill (LFCF) for the MSE wall backfill in lieu of the engineered granular backfill typically specified for MSE walls. Place LFCF to the limits shown in the plans. Engineered granular backfill is required as designated and shown on the plans in the wall transition zones where the MSE wall backfill transitions from LFCF to conventional engineered granular backfill.

This special provision describes the quality management program (QMP) for MSE walls. A quality management program is defined as all activities, including process control, inspection, sampling and testing, and necessary adjustments in the process that are related to the construction of the MSE wall, which meets all the requirements of this provision.

This special provision describes contractor quality control (QC) sampling and testing for LFCF cast density and compressive strength and granular backfill density testing, documenting those results, and documenting related production and placement process changes. This special provision also describes department quality verification (QV), independent assurance (IA), and dispute resolution.

Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes sampling and testing procedures. The contractor may obtain the CMM from the department's web site at:
http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/rdwy/cmm.aspx

### B Materials

#### B.1 Proprietary Mechanically Stabilized Earth Concrete Panel Wall Systems

The supplied precast panel wall system with integrated traffic barrier must be provided by one of the same manufacturers of the department's approved list of Concrete Panel Mechanically Stabilized Earth Wall systems (Concrete Panel MSE Walls).

Proprietary wall systems may be used for this work, but must conform to the requirements of this specification and designed and manufactured by the same manufacturer of proprietary mechanically stabilized earth concrete panel wall systems pre-approved for use by the department's Bureau of Structures, Structures Design Section. The department

maintains a list of pre-approved Concrete Panel Mechanically Stabilized Earth Wall systems. To be eligible for use on this project, a MSE concrete panel wall system with an integrated traffic barrier must be manufactured by the one of same manufacturers of pre-approved Concrete Panel Mechanically Stabilized Earth Wall systems and on the pre-approved list prior to the bid opening date. The name of the pre-approved proprietary wall system selected shall be furnished to the engineer within 25 days after the award of contract. The location of the plant manufacturing the concrete panels with integrated traffic barrier shall be furnished to the engineer at least 14 days prior to the start of panel production.

To receive pre-approval, the retaining wall system must comply with all pertinent requirements of this provision. Applications for pre-approval may be submitted at any time. Applications must be prepared in accordance to the requirements of Chapter 14 of the department's LRFD Bridge Manual. Information and assistance with the pre-approval process can be obtained by contacting the Structures Design Section in Room 601 of the Hill Farms State Transportation Building in Madison or by calling (608) 266-8494.

**B.2 Design Requirements**

It is the responsibility of the contractor to supply a design and supporting documentation as required by this special provision, for review by the department, to show the proposed wall design is in compliance with the design specifications. Four copies of the following shall be submitted to the engineer for review and acceptance no later than 60 days from the date of notification to proceed with the project.

The plans and shop drawings shall be prepared on reproducible sheets 11 inch x 17 inch, including borders. Each sheet shall have a title block in the lower right corner. The title block shall include the project identification number and structure number. Design calculations and notes shall be on 8 ½ inch x 11 inch sheets, and shall contain the project identification number, name or designation of the wall, date of preparation, initials of designer and checker, and page number at the top of the page. All plans, shop drawings, and calculations shall be signed, sealed and dated by a professional engineer licensed in the State of Wisconsin.

The design of the Concrete Panel MSE wall shall be in compliance with the *AASHTO LRFD Bridge Design Specifications 5th Edition 2010*, (AASHTO LRFD) with latest interim specifications for Mechanically Stabilized Earth Walls, WisDOT's current *Standard Specifications for Highway and Structure Construction* (Standard Specifications), Chapter 14 of the WisDOT LRFD Bridge Manual and standard engineering design procedures as determined by the department. Loads, load combinations, load and resistance factors shall be as specified in AASHTO LRFD Section 11. The associated resistance factors shall be defined in accordance to Table11.5.6-1 LRFD.

Design and construct the walls in accordance to the lines, grades, heights and dimensions shown on the plans, as herein specified, and as directed by the engineer. Where walls or wall sections intersect with an included angle of 130 degrees or less, a vertical corner

element separate from the standard panel face shall abut and interact with the opposing standard panels. The corner element shall have ground reinforcement connected specifically to that panel and shall be designed to preclude lateral spread of the intersecting panels. If the wall is installed in front of a bridge abutment or wing, it shall also be designed to resist the applied abutment/bridge lateral forces specified on the contract plans.

Walls parallel to supporting highway traffic shall be designed for the effects of highway surcharge loading equivalent of 2 feet soil surcharge weight or 240 psf. The design shall also consider the traffic barrier impact where applicable. Walls that do not carry highway traffic shall be designed for a live load surcharge of 100 psf in accordance to Chapter 14 of the WisDOT LRFD Bridge Manual or as stated on the plans.

Provide an integrated barrier on top of the wall with barrier height and shape of the traffic face as detailed on the plans. Design the traffic barrier to resist design impact forces given in AASHTO LRFD Table A13.2-1, to the Railing Test Level indicated on the plans. Distribute the barrier impact loads through the barrier to the upper rows of soil reinforcement according to AASHTO LRFD. Provide supporting design calculations of the entire wall system and individual wall components to meet the required traffic barrier impact resistance.

Use LFCF as MSE backfill within the limits shown on the plans. The design of the wall and reinforced backfill zone behind this wall is to be based on an equivalent backfill area of assumed granular backfill with a maximum angle of internal friction of 30 degrees and unit weight density equal to the unit weight density of the LFCF backfill. All design and geometric requirements specified by AASHTO and hereinafter for MSE walls with granular backfill, including minimum length of MSE reinforcement will apply to this wall backfilled with LFCF material in lieu of the granular backfill.

A maximum value of the angle of internal friction used for design for the wall granular backfill placed in the wall transition zones shall be assumed to be 30 degrees.

An external stability check at critical wall stations showing Capacity Demand Ratios (CDR) for sliding, eccentricity, and bearing checks is performed by the department and are provided on the wall plans.

The design of the Concrete Panel Mechanically Stabilized Earth wall by the contractor shall consider the internal and compound stability of the wall mass in accordance to AASHTO LRFD 11.10.6. The internal stability shall include soil reinforcement pullout, soil reinforcement rupture, and panel-reinforcement connection failure at each soil reinforcement level. The design shall be performed using the Simplified Method or Coherent Gravity Method. Calculations for factored stresses and resistances shall be based upon assumed conditions at the end of the design life. Compound stability shall be computed for the applicable strength limits.

Facing panels shall meet the design requirements of AASHTO LRFD 11.10.2.3. The Facing panels shall also be designed to resist fluid pressures due to LFCF placement and compaction stresses that occur during the wall erection. The minimum thickness of the Facing panel shall be 5.5 inches. The surface area of a standard single panel cannot exceed 100 square feet. The maximum height of a standard panel shall be 10 feet not including the height of the traffic barrier on top of the panel. The design of the steel reinforcement within the panels shall be based on one-way bending action. Design the wall panels and joints between panels to accommodate a maximum differential settlement of 1 foot over a 100-foot length, unless the plans indicate other.

The minimum length of soil reinforcement measured from the back face of the wall shall be equal to 0.7 times the wall height or as shown on the plan; whichever is greater. In no case shall this length be less than 8 feet. The soil reinforcement length shall be the same from the bottom to the top of the wall. The soil reinforcement shall extend a minimum of 3.0 feet beyond the theoretical failure plane in all cases. The maximum vertical spacing of soil reinforcement layers shall be 31 inches. The uppermost layer of the reinforcement shall be located between 6 inches and 18 inches below the bottom of an overlying slab, footing or top of the wall. The upper layers of the soil reinforcement shall also be checked to verify that they have sufficient tensile resistance against traffic barrier impact where applicable.

All soil reinforcement steel required for the reinforced soil zone shall be connected to the face panels. The reinforcement and the reinforcement/facing connection strength shall be designed to resist maximum factored reinforcement loads in accordance to AASHTO LRFD Section 11.10.6. Facing connection strength shall be defined as the resistance factor times the failure load, or the load at 0.5 inch deformation times 0.9, whichever is less. The nominal long term design strength in steel reinforcement and connections shall be based upon assumed conditions at the end of the design life.

Soil reinforcement shall be prefabricated into single or multiple elements before galvanizing. Soil reinforcement shall be fabricated or designed to avoid piling, drainage structures or other obstacles in the fill without field modifications. Cutting or altering of the basic structural section of either the strip or grid at the site is prohibited unless approved by the Structures Design Section. A minimum clearance of 3” shall be maintained between any obstruction and reinforcement unless otherwise approved by the Structures Design Section. Splicing steel reinforcement is not allowed, unless approved by the Structures Design Section.

MSE facing panels shall be installed on concrete leveling pads. The minimum cross section of the leveling pad shall be 6-inches deep by 1-foot wide. Potential depth of frost penetration at the wall location shall not be considered in designing the wall for depth of leveling pad.

Submit the following to the engineer for review: complete design calculations, explanatory notes, supporting materials, specifications, and detailed plans and shop drawings for the proposed wall system. Sample analyses and hand output shall be submitted to verify the

output by the software. The design calculations and notes shall clearly indicate the Capacity to Demand Ratios (CDR) for all internal stabilities as defined in AASHTO LRFD.

The wall submittal package shall be submitted electronically to the engineer and Structures Design Section. Submit all required information no later than 30 days prior to beginning construction of the wall. The detailed plans and shop drawings shall include all details, dimensions, quantities and cross-sections necessary to construct the walls.

**B.3 Wall System Components**

Materials furnished for wall system components under this contract shall conform to the requirements of this specification. All certifications related to material and components of the wall systems specified in this subsection shall be submitted to the engineer.

**B.3.1 General**

The walls shall have modular precast concrete face panels produced by a wet cast process, and have cast-in-place concrete pads or footings. The concrete panels shall have a minimum strength of 4000 psi at 28 days. The concrete for the panels shall be air entrained, with an air content of 6% +/- 1.5%. All materials for the concrete mixture for the panels shall meet the requirements of standard spec 501. The panel edges shall be configured so as to conceal the joints. The detail shall be a shiplap, tongue and groove or other detail adequate to prevent vandalism or ultraviolet light damage to the backside of the wall joint covering. Joints between panels shall be no more than 0.75 inch. Use full wall height slip joints at points of differential settlement when detailed on the plan. Horizontal joints must be provided with a compressible bearing material to prevent concrete to concrete contact.

A minimum of two bearing pads shall be used per panel. The allowable bearing stress shall not exceed 900 psi. The bearing pads shall be preformed EPDM rubber conforming to ASTM D-2000, Grade 2, Type A, Class A with a minimum Durometer Hardness of 80, or high- density polyethylene pads with a minimum density of 0.034 $lb/in^3$ in accordance to ASTM 1505.

An 18-inch wide geotextile shall be used on the backface of the wall panels to cover all panel joints. The geotextile shall meet the physical requirements stated in standard spec 645.2.4 for Geotextile Fabric, Type DF, Schedule B, except that the grab tensile strength shall be a minimum of 180 pounds in both the machine and cross-machine directions. The geotextile shall be attached with a standard construction adhesive suitable for use on concrete surfaces and cold temperatures. The adhesive shall be applied to the panels, not to the geotextile.

All steel portions of the wall system exposed to earth or LFCF backfill shall be galvanized. All soil reinforcement and attachment devices shall be carefully inspected to ensure they are true size and free from defects that may impair the strength and durability.

For cast in place sections of cap and coping, use poured concrete masonry Grade A, A-FA, A-S, A-T, A-IS or A-IP concrete conforming to standard spec 501 as modified in standard spec 716. Provide QMP for cast in place cap and coping concrete as specified in standard spec 716, Class II Concrete.

Use a wall leveling pad that consists of poured concrete masonry, Grade A, A-FA, A-S, A-T, A-IS or A-IP concrete conforming to standard spec 501 as modified in standard spec 716. Provide QMP for leveling pad concrete as specified in standard spec 716, Class III Concrete.

The minimum embedment to the top of the leveling pad shall be 1 foot 6 inches or as given on the plan or given in AASHTO LRFD 11.10.2.2 whichever is greater. Step the leveling pad to follow the general slope of the ground line. The leveling pad's steps shall keep the bottom of the wall within one half the panel heights of the minimum embedment i.e. the minimum embedment plus up to one half the height of one panel. Additional embedment may be detailed by the contractor, but will not be measured for payment.

**B.3.2 Backfill**

Furnish and place backfill for mechanically stabilized earth concrete panel walls as shown on the plans and as hereinafter provided.

**B.3.2.1 LFCF Backfill**

Furnish LFCF backfill for mechanically stabilized earth concrete panel with traffic barrier walls LRFD LFCF as shown on the plans and as hereinafter provided. Provide LFCF material meeting the requirements specified in SPV Article Lightweight Foamed Concrete Fill Grade 1 and Lightweight Foamed Concrete Fill Grade 2 included in the contract.

**B.3.2.3 Transition Zone Backfill**

In the LFCF transition zone indicated on the plans, where the MSE wall backfill transitions from LFCF backfill to conventional MSE granular backfill, provide and use backfill that consists of natural sand or a mixture of sand with gravel, crushed gravel or crushed stone. It shall not contain recycled or milled asphalt, recycled concrete, foundry sand, bottom ash, blast furnace slag or other potentially corrosive material.

Provide material conforming to the following gradation requirements as per AASHTO T27.

| Sieve Size | Percentage by Weight Passing |
|---|---|
| 1 inch | 100 |
| No. 40 | 0 – 60 |
| No. 200 | 0 – 15 |

The material shall have a liquid limit not greater than 25, as per AASHTO T89, and a plasticity index not greater than 6, as per AASHTO T90. Provide the percent by weight, passing the #4 sieve.

In addition, backfill material shall meet the following requirements.

| Test | Method | Value |
|---|---|---|
| pH | AASHTO T-289 | 5 – 10.0 |
| Sulfate content | AASHTO T-290 | 200 ppm max. |
| Chloride content | AASHTO T-291 | 100 ppm max. |
| Electrical Resistivity | AASHTO T-288 | 3000 ohm/cm min. |
| Organic Content | AASHTO T-267 | 1.0% max. |
| Angle of Internal Friction | AASHTO T-236* | 30 degrees min. (At 95.0% of maximum density and optimum moisture, per AASHTO T99, or as modified by C.2.) |

*If the amount of P-4 material is greater than 60%, use AASHTO 236 with a standard-size shear box. Test results of this method may allow the use of larger angles of internal friction, up to the maximum allowed by this specification.

If the amount of P-4 material is less than or equal to 60%, two options are available to determine the angle of internal friction. The first method is to perform a fractured faces count, per ASTM 5821, on the R-4 material. If more than 90% of the material is fractured on one face and more than 50% is fractured on two faces, the material meets the specifications and the angle of internal friction can be assumed to be 30 degrees. The second method allows testing all P-1" material, as per AASHTO T-236, with a large shear box. Test results of this second method may allow the use of larger angles of internal friction, up to the maximum allowed by this specification.

Prior to placement of the backfill, obtain and furnish to the engineer a certified report of test results that the backfill material complies with the requirements of this specification. Specify the method used to determine the angle of internal friction. This certified report of test shall be less than 6 months old. Tests will be performed by a certified independent laboratory. In addition, when backfill characteristics and/or sources change, provide a certified report of tests for the new backfill material. Additional certified reports of tests (except Angle of Internal Friction test), are also required. These additional backfill tests may be completed at the time of material production or material placement, with concurrence of the engineer. If this additional testing is completed at the time of material production, complete testing for every 2000 cubic yards of backfill or portion thereof. If this additional testing is completed at the time of material placement, complete testing for every 2000 cubic yards of backfill, or portion thereof, used per wall. All certified report of test results shall be less than 6 months old and performed by a certified independent laboratory.

## C Construction

### C.1 Excavation and Backfill

Excavation will encompass preparing the leveling pad foundation and the area below the reinforcing strips in accordance to standard spec 206. The volume of excavation covered is limited to the width of the reinforced mass and to the depth of the leveling pad unless shown or noted otherwise on the plan. At the end of each working day, provide good temporary drainage such that the backfill shall not become contaminated with run-off soil or water if it should rain. Do not stockpile or store materials or large equipment within 10 feet of the back of the wall.

### C.2 Backfill

#### C.2.1 LFCF Backfill

Submit an LFCF placement plan, trial batch test results, and quality assurance samples per C.1 of the SPV Article Lightweight Foamed Concrete Fill Grade 1 and Lightweight Foamed Concrete Fill Grade 2 included in the contract. Place LFCF backfill in accordance to the requirement specified in SPV Article Lightweight Foamed Concrete Fill Grade 1 and Lightweight Foamed Concrete Fill Grade 2 included in the contract.

#### C.2.2 Transition Zone Granular Backfill Compaction

Place and compact all granular backfill placed in the LFCF transition zone indicated on the plans behind the wall as specified in standard spec 207.3.6. Compact the backfill to 95.0% of maximum dry density as determined by AASHTO T-99 (modified to compute densities to the nearest 0.1 pcf), or as modified as follows. If the gradation of the granular backfill is such that the P-200 material is less than 7% and the P-40 is less than 30%, a one-point Proctor test can be conducted in place of the 5-point Proctor. To complete this one-point test, compact the sample at a moisture content of 6%, then compute the actual (as-tested) sample moisture after completion of the test. Use Method B or D, and perform this test without removing oversize particles and without correction for coarse particles, as per AASHTO T224. The one-point as-tested moisture content represents the optimum moisture, and the measured one-point density represents the maximum wet density of the material. From these values, the maximum dry density can be computed.

Ensure adequate moisture is present in the backfill during placement and compaction to prevent segregation and to help achieve compaction.

Compaction of backfill within 3 feet of the back face of the wall should be accomplished using lightweight compaction devices. Use of heavy compaction equipment or vehicles should be avoided within 3 feet of the panels.

#### C.2.3 MSE Reinforcement

Bending of MSE reinforcement that result in a kink in the reinforcement shall not be allowed. If skewing of the reinforcement is required due to obstructions in the reinforced fill, the maximum skew angle shall not exceed 15 degrees from the normal position unless a greater angle is shown on the plans. The adequacy of the skewed reinforcement in such a case shall be addressed by supporting calculations.

For embedment in LFCF backfill, place MSE reinforcement that will become embedded in the next lift of LFCF prior to placing the LFCF lift. Provide temporary supports to hold the MSE reinforcement a minimum of 4" above the previously placed LFCF backfill so that the MSE reinforcement becomes fully encapsulated in the subsequent LFCF lift placement. Provide adequate supports to hold the MSE reinforcement in an approximate horizontal position with no kinks, sharp bends or abrupt changes in direction in the reinforcement. Do not lay the MSE reinforcement directly on the top of the prior LFCF placement or otherwise locate the MSE reinforcement along cold joints between LFCF placements.

For embedment of MSE reinforcements in granular backfill, place and compact the MSE backfill to the level of the next higher layer of MSE reinforcement before placing the MSE reinforcement or connecting it to the wall facing. The MSE reinforcement shall lay horizontally on the top of the most recently placed and compacted layer of MSE backfill.

**C.3 Panel Tolerances**

As backfill material is placed behind a panel, maintain the panel in its proper inclined position according to the supplier specifications and as approved by the engineer. The supplier shall specify the back batter so that the final position of the wall is vertical. Vertical tolerances and horizontal alignment tolerances shall not exceed ¾-inch when measured along a 10-foot straight edge. The maximum allowable offset in any panel joint shall be ¾-inch. The overall vertical tolerance of the wall (plumbness from top to bottom) shall not exceed ½-inch per 10 feet of wall height. Erect the precast face panels to ensure that they are located within 1 inch from the contract plan offset at any location to ensure proper wall location at the top of the wall. Provide a ¾-inch joint separation between all adjacent face panels to prevent direct concrete-to-concrete contact. Maintain this gap by the use of bearing pads and/or alignment pins. Failure to meet this tolerance shall cause the engineer to require the contractor to disassemble and re-erect the affected portions of the wall. In addition, imperfect molding, honeycombing, cracking or severe chipping of panels shall be cause of panel rejection.

**C4 Quality Management Program**

**C.4.1 Quality Control Plan**

Submit a comprehensive written quality control plan to the engineer at or before the pre-construction meeting. Do not perform MSE wall construction work before the engineer reviews and accepts the plan. Construct the project as the plan provides.

Do not change the quality control plan without the engineer's review and acceptance. Update the plan with changes as they become effective. Provide a current copy of the plan to the engineer and post in the contractor's laboratory as changes are adopted. Ensure that the plan provides the following elements:

- An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of QC personnel.
- The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication process that will be used, and action time frames.
- A list of source locations, section and quarter descriptions, for all aggregate materials requiring QC testing.
- Descriptions of stockpiling and hauling methods.
- An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.
- Location of the QC laboratory, retained sample storage, and other documentation.
- A summary of the locations and calculated quantities to be tested under this provision.

**C.4.2 Quality Control Personnel**

Perform the quality control sampling, testing, and documentation required under this provision using HTCP certified technicians. Have a HTCP Level I Grading Technician, Level I Aggregate Technician, or Assistant Certified Aggregate Technician (ACT) present at the each grading site during all wall backfill placement, compaction, and nuclear testing activities. Have a HTCP Level I Nuclear Density Technician or Assistant Certified Nuclear Density Technician (ACT) perform field density and field moisture content testing.

If an Assistant Certified Technician (ACT) is performing sampling or testing, a certified technician must coordinate and take responsibility for the work an ACT performs. Have a certified technician ensure that all sampling and testing is performed correctly, analyze test results, and post resulting data. No more than one ACT can work under a single certified technician.

**C.4.3 Equipment**

Furnish the necessary equipment and supplies for performing quality control testing. Ensure that all testing equipment conforms to the equipment specifications applicable to the required testing methods. The engineer may inspect the measuring and testing devices to confirm both calibration and condition. Calibrate all testing equipment according to the CMM and maintain a calibration record at the laboratory.

Furnish nuclear gauges from the department's approved product list at http://www.atwoodsystems.com/materials. Ensure that the gauge manufacturer or an approved calibration service calibrates the gauge the same calendar year it is used on the project. Retain a copy of the calibration certificate with the gauge.

Conform to ASTM D 6938 and CMM 8.15 for density testing and gauge monitoring methods. Perform nuclear gauge measurements using gamma radiation in the backscatter or direct transmission position. Perform each test for 4 minutes of nuclear gauge count time.

Split each Proctor sample and identify so as to provide comparison with the department's test results. Unless the engineer directs otherwise, retain the QC split samples for 14 calendar days and promptly deliver the department's split samples to the department

**C.4.4 Quality Control (QC) Testing**

**C4.4.1 LFCF Backfill**

**C4.4.1.1 Cast Density of Field Installed LFCF**

Test cast density in accordance to ASTM C 796

1. Prior to placement of the initial batch, the installer shall check the density and adjust the mix as required to obtain the manufacturer's specified cast density at point of placement.
2. At hourly intervals during placement, monitor the density and adjust as necessary to maintain the specified cast density.

**C.4.4.1.2 Strength Testing**

Conduct strength testing in accordance to ASTM C 796 except do not oven dry the test specimens.

1. Furnish a sufficient quantity of molded and cured cylinders measuring 3-inches in diameter by 6-inches high for required strength tests. Provide molds, and a similar curing environment of the LFCF being tested. Prepare cylinders in accordance to ASTM C1064.
2. Provide certified strength test results to the engineer for acceptance. At a minimum, conduct a set of three strength tests at 1, 2, and 28 day intervals for each 500 cubic yards of LFCF placed and a minimum of two sets of four cylinders each per day
3. Perform the compressive strength testing at a department qualified laboratory meeting the requirements of C.5 in SPV Article Lightweight Foamed Concrete Fill Grade 1 and Lightweight Foamed Concrete Fill Grade 2 included in the contract.

**C4.4.2 Granular Backfill**

Perform compaction testing on the granular backfill. Conform to CMM 8.15 for testing and gauge monitoring methods. Conduct testing at a minimum frequency of 1 test per 150 cubic yards of backfill, or major portion thereof. A minimum of one test for every lift is required. Deliver documentation of all compaction testing results to the engineer at the time of testing.

Perform 1 gradation test every 750 cubic yards of fill and one 5-point Proctor test (or as modified in C.2) every 2000 cubic yards of fill. Provide the region split samples of both within 72 hours of sampling, at the region laboratory. Test sites shall be selected using ASTM Method D3665. Provide Proctor test results to the engineer within 48 hours of sampling. Provide gradation test results to the engineer within 24 hours of sampling.

### C.4.5 Department Testing

#### C.4.5.1 General

(1) The department will conduct verification testing to validate the quality of the product and independent assurance testing to evaluate the sampling and testing. The department will provide the contractor with a listing of names and telephone numbers of all QV and IA personnel for the project, and provide test results to the contractor within two business days after the department obtains the sample.

#### C.4.5.2 Quality Verification (QV) Testing

(1) The department will have an HTCP technician, or ACT working under a certified technician, perform QV sampling and testing. Department verification testing personnel must meet the same certification level requirements specified in C.4.2 for contractor testing personnel for each test result being verified. The department will notify the contractor before sampling so the contractor can observe QV sampling.

(2) The department will conduct QV tests at the minimum frequency of 30% of the required contractor cast density, compressive strength, density, Proctor and gradation tests.

(3) The department will obtain LFCF material for cast density and compressive strength tests at random intervals independent of the contractor's QC work. For granular backfill the department will locate density tests and gradation samples randomly, at locations independent of the contractor's QC work. The department will split each Proctor and gradation QV sample, testing half for QV, and retaining the remaining half for 10 business days.

(4) The department will conduct cast density, compressive strength, QV Proctor and gradation tests in a separate laboratory and with separate equipment from the contractor's QC tests. The department will use the same methods specified for QC testing.

(5) The department will assess QV results by comparing to the appropriate specification limits. If QV test results conform to this special provision, the department will take no further action. If density QV test results are nonconforming, the area shall be reworked until the density requirements of this special provision are met. If the cast density, compressive strength or gradation test results are nonconforming, standard spec 106.5 will apply. Differing QC and QV nuclear density values of more than 1.5 pcf will be investigated and resolved. QV density tests will be based on the appropriate QC Proctor test results, unless the QV and QC Proctor result difference is greater than 3.0 pcf. Differing QC and QV Proctor values of more than 3.0 pcf will be investigated and resolved. Differing QC and QV cast density and compressive strength test values of more than 4% will be investigated and resolved.

### C.4.5.3 Independent Assurance (IA)

(1) Independence assurance is unbiased testing the department performs to evaluate the department's QV and the contractor's QC sampling and testing, including personnel qualifications, procedures, and equipment. The department will perform an IA review according to the department's independent assurance program. That review may include one or more of the following:

1. Split sample testing.
2. Proficiency sample testing.
3. Witnessing sampling and testing.
4. Test equipment calibration checks.
5. Reviewing required worksheets and control charts.
6. Requesting that testing personnel perform additional sampling and testing.

(2) If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend placement until action is taken. Resolve disputes as specified in C.4.5.4.

### C.4.5.4 Dispute Resolution

(1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate sampling and testing procedures, and perform additional testing. Use ASTM E 178 to evaluate potential statistically outlying data.

(2) Production test results, and results from other process control testing, may be considered when resolving a dispute.

(3) If the project personnel cannot resolve a dispute, and the dispute affects payment or could result in incorporating non-conforming product or work, the department will use third party testing to resolve the dispute. The department's central office laboratory, or a mutually agreed on independent testing laboratory, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent laboratory. The department may use third party test results to evaluate the quality of questionable materials and determine the appropriate payment. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

## C.5 Dampproofing

Apply dampproofing conforming to standard spec 516 to the final horizontal and vertical surfaces of the LFCF material at locations designated on the plans.

**C.6 Geotechnical Information**
Geotechnical data to be used in the design of the wall is given on the wall plan. After completing wall excavation of the entire reinforced soil zone, notify the department and allow the Regional Geotechnical Engineer two working days to review the foundation.

**D Measurement**
The department will not measure Wall Concrete Panel With Traffic Barrier Mechanically Stabilized Earth LRFD/LFCF. The department will use pay plan quantity according to the Pay Plan Quantity article. No measurement of quantities shall be made in the field. Unless the engineer directs in writing, a change to the limits indicated on the contract plan, wall area constructed above or below these limits will not be measured for payment.

**E Payment**
The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0165.4760 | Wall Concrete Panel With Traffic Barrier Mechanically Stabilized Earth LRFD/LFCF | SF |

Payment is full compensation for supplying a design and shop drawings; preparing the site, including all necessary excavation and disposal of materials; supplying all necessary wall components to produce a functional system including cap and copings; constructing the retaining system including integral traffic barrier on top of the wall, providing and placing LFCF and granular backfill, compacting, developing/completing/documenting the quality management program, performing cast density, compressive strength and compaction testing.

Any required topsoil, fertilizer, seeding or sodding and mulch will be paid for at the contract unit price of topsoil, fertilizer, seeding or sodding and mulch, respectively.

Dampproofing will be measured and paid for separately in accordance to standard spec 516.

## 386. Temporary Wall Wire Faced Mechanically Stabilized Earth LRFD/QMP, Item SPV.0165.4770.

**A Description**
This special provision describes designing, furnishing materials and erecting a temporary earth retention system in accordance to the lines, dimension, elevations and details as shown on the plans and provided in the contract.

This special provision describes the quality management program (QMP) for MSE walls. A quality management program is defined as all activities, including process control, inspection, sampling and testing, and necessary adjustments in the process that are related to the construction of the MSE wall, which meets all the requirements of this provision.

This special provision describes contractor quality control (QC) sampling and testing for backfill density testing, documenting those results, and documenting related production and placement process changes. This special provision also describes department quality verification (QV), independent assurance (IA), and dispute resolution.

Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes sampling and testing procedures. The contractor may obtain the CMM from the department's web site at:
http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/rdwy/cmm.aspx

## B Materials

### B.1 Proprietary Wire Faced Mechanically Stabilized Earth Wall Systems

The supplied wall system must be from the department's approved list of Wire Faced Mechanically Stabilized Earth Wall systems (Wire Faced MSE Walls).

Proprietary wall systems may be used for this work, but must conform to the requirements of this specification and be pre-approved for use by the department's Bureau of Structures, Structures Design Section. The department maintains a list of pre-approved Wire Faced Mechanically Stabilized Earth (Wire Faced MSE) Wall systems. The name of the pre-approved proprietary wall system selected shall be furnished to the engineer within 25 days after the award of contract.

To receive pre-approval, the retaining wall system must comply with all pertinent requirements of this provision. Applications for pre-approval may be submitted at any time. Applications must be prepared in accordance to the requirements of Chapter 14 of the department's current LRFD Bridge Manual. Information and assistance with the pre-approval process can be obtained by contacting the Structures Design Section in Room 601 of the Hill Farms State Transportation Building in Madison or by calling (608) 266-8494.

### B.2 Design Requirements

It is the responsibility of the contractor to supply a design and supporting documentation as required by this special provision for review by the department to show the proposed wall design is in compliance with the design specifications. Four copies of the following shall be submitted to the engineer for review and acceptance no later than 60 days from the date of notification to proceed with the project.

The plans and shop drawings shall be prepared on reproducible sheets 11 inch x 17 inch, including borders. Each sheet shall have a title block in the lower right corner. The title block shall include the project identification number and structure number. Design calculations and notes shall be on 8 ½ inch x 11 inch sheets, and shall contain the project identification number, name or designation of the wall, date of preparation, initials of designer and checker, and page number at the top of the page. All plans, shop drawings, and calculations shall be signed, sealed and dated by a professional engineer licensed in the State of Wisconsin.

The design of the Wire Faced MSE Walls shall be in compliance with the *AASHTO LRFD Bridge Design Specifications 5th Edition 2010*, (AASHTO LRFD) with latest interim specifications for Mechanically Stabilized Earth Walls, WisDOT's current *Standard Specifications for Highway and Structure Construction* (Standard Specifications), Chapter 14 of the WisDOT LRFD Bridge Manual and standard engineering design procedures as determined by the department. Loads, load combinations, load and resistance factors shall be as specified in AASHTO LRFD Section 11. The associated resistance factors shall be defined in accordance to Table 11.5.6-1 LRFD.

Design and construct the walls in accordance to the lines, grades, heights and dimensions shown on the plans, as herein specified, and as directed by the engineer. If the wall is installed in front of a bridge abutment or wing, it shall also be designed to resist the applied abutment/bridge lateral forces specified on the contract plans.

Walls parallel to supporting highway traffic shall be designed for the effects of highway surcharge loading equivalent of 2 feet soil surcharge weight or 240 psf. The design shall also consider the traffic barrier impact where applicable. Walls that do not carry highway traffic shall be designed for a live load surcharge of 100 psf in accordance to Chapter 14 of the WisDOT LRFD Bridge Manual or as stated on the plans.

A maximum value of the angle of internal friction of the wall backfill material used for design shall be assumed to be 30 degrees without a certified report of tests. If a certified report of tests yields an angle of internal friction greater than 30 degrees, the larger test value may be used for design, up to a maximum value of 36 degrees.

An external stability check at critical wall stations showing Capacity Demand Ratios (CDR) for sliding, eccentricity, and bearing checks is performed by the department and are provided in the wall plans.

The design of the Wire Faced MSE Walls by the contractor shall consider the internal and compound stability of the wall mass in accordance to AASHTO LRFD 11.10.6. The internal stability shall include soil reinforcement pullout, soil reinforcement rupture, and panel-reinforcement connection failure at each soil reinforcement level. The design shall be performed using the Simplified Method or Coherent Gravity Method. Calculations for factored stresses and resistances shall be based upon assumed conditions at the end of the design life. Compound stability shall be computed for the applicable strength limits.

The minimum embedment of the Wire Faced MSE wall shall be 1 foot 6 inches, or as given on the contract plan. Frost depth shall not be considered. Additional embedment may be detailed by the contractor, but will not be measured for payment. The wall facings shall be designed in accordance to AASHTO 11.10.2.3. A fine metallic screen and a geotextile filter fabric shall be used at the front face of the wall to retain the fines of the soil mass.

The nominal long term design strength to be used in steel reinforcement and connector design shall consider the corrosion losses and based upon conditions at the end of the design life. The minimum length of soil reinforcement measured from the back face of the wall shall be equal to 0.7 of the wall height or as shown on the plan. In no case shall this length be less than 8 feet. The soil reinforcement shall be the same length from the bottom to the top of each wall section. All soil reinforcement layers shall be connected to facings. The soil reinforcement shall extend 3 feet beyond the theoretical failure plane in all cases. The maximum vertical spacing of soil reinforcement layers shall be 24 inches. The uppermost layer of the reinforcement shall be located between 6" and 12" below the bottom of an overlying slab, footing or top of the wall. The upper layers of the soil reinforcement shall also be checked to verify that they have sufficient tensile resistance against traffic barrier impact where applicable.

Soil reinforcement shall be fabricated or designed to avoid piling, drainage structures or other obstacles in the fill without field modifications. Cutting or altering of the basic structural section of either the strip or grid at the site is prohibited unless approved by the Structures Design Section. A minimum clearance of 3" shall be maintained between any obstruction and reinforcement unless otherwise approved by the Structures Design Section. Splicing steel reinforcement is not allowed unless approved by the Structures Design Section.

Submit the following to the engineer for review: complete design calculations, explanatory notes, supporting materials, specifications, and detailed plans and shop drawings for the proposed wall system. Sample analyses and hand output shall be submitted to verify the output by the software. The design calculations and notes shall clearly indicate the Capacity to Demand Ratios (CDR) for all internal stabilities as defined in AASHTO LRFD.

The wall submittal package shall be submitted electronically to the engineer and the Structures Design Section. Submit all required information no later than 30 days prior to beginning construction of the wall. The detailed plans and shop drawings shall include all details, dimensions, quantities and cross-sections necessary to construct the walls.

### B.3 Wall System Components

Materials furnished for wall system components under this contract shall conform to the requirements of this specification. All certifications related to material and components of the wall systems specified in this subsection shall be submitted to the engineer.

#### B.3.1 Steel Components

Provide steel reinforcement that meets the following requirements:

**B.3.1.1 Welded Wire Fabric Soil Reinforcement**
Provide shop fabricated welded wire reinforcement from cold drawn steel wire that has a yield stress of 65,000 psi and conforming to the minimum requirements of ASTM A-82 and be welded into the finished configuration in accordance to ASTM A-185. Replace welded wire fabric that has been damaged during handling, placing or backfilling at the direction of the engineer, at no expense to the department.

**B.3.1.2 Steel Reinforcing Strips and Tie Strips**
As an alternate to Welded Wire Reinforcing mesh, provide Steel Reinforcing strips or ladder Reinforcing strips or equal, hot-rolled from bars, to the required shape and dimensions meeting the requirements of ASTM A-572 Grade 65 minimum. Tie strips shall be shop fabricated of hot-rolled steel meeting the requirements of ASTM A-1011 Grade 50.

**B.3.1.3 Welded Wire Fabric Facing Panels**
Provide welded wire fabric that is used to fabricate the facings of the wire-Faced wall that has a yield stress of 65,000 psi. All steel shall be shop fabricated of cold drawn steel wire conforming to the minimum requirements of ASTM A-82 and be welded into the finished configuration in accordance to ASTM A-185. Replace welded wire fabric that has been damaged during handling, placing or backfilling at the direction of the engineer, at no expense to the department.

**B.3.1.4 Fasteners**
High strength bolts meeting the requirements of AASHTO M164 or equivalent.

**B.3.1.5 Connector Pins and Mat Bars**
Connector pins and mat bars fabricated from cold drawn steel wire meeting the requirements of ASTM A-82.

**B.3.1.6 Metallic Screen**
Provide a steel metallic screen. The metallic screen should have an approximate opening of ¼" and be made of 0.025" (minimum) diameter welded wire.

**B.3.2 Geotextile Filter Fabric**
Geotextile filter fabric shall be used behind the metallic screen. Provide two layers of geotextile fabric when called for in the plans. Use geotextile as recommended by the wall manufacturer. If none is recommended, use Type DF (schedule B) as shown in standard spec 645 or as specified on the contract plans. Deliver geotextile fabric in a protective wrap and keep it protected from ultraviolet light until it is incorporated into the work.

**B.3.3 Backfill**
Furnish and place backfill for Wire- Faced MSE wall as shown on the plans and as herein provided.

Provide and use material that consists of natural sand or a mixture of sand with gravel, crushed gravel or crushed stone. It shall not contain foundry sand, bottom ash, blast furnace slag, crushed/recycled concrete, crushed/milled asphaltic concrete or other potentially corrosive material.

Provide material that conforms to the following gradation requirements as per AASHTO T27.

| Sieve Size | % by Weight Passing |
|---|---|
| 1 inch | 100 |
| No. 40 | 0-60 |
| No. 200 | 0-15 |

The material shall have a liquid limit not greater than 25, as per AASHTO T89, and a plasticity index not greater than 6, as per AASHTO T90. Provide the percent by weight, passing the #4 sieve.

In addition, backfill material shall meet the following requirements.

| Test | Method | Value |
|---|---|---|
| pH | AASHTO T-289 | 5 – 10.0 |
| Sulfate content | AASHTO T-290 | 200 ppm max. |
| Chloride content | AASHTO T-291 | 100 ppm max. |
| Electrical Resistivity | AASHTO T-288 | 3000 ohm/cm min. |
| Organic Content | AASHTO T-267 | 1.0% max. |
| Angle of Internal Friction | AASHTO T-236* | 30 degrees min. (At 95.0% of maximum density and optimum moisture, per AASHTO T99, or as modified by C.1) |

*If the amount of P-4 material is greater than 60%, use AASHTO 236 with a standard-size shear box. Test results of this method may allow the use of larger angles of internal friction, up to the maximum allowed by this specification.

If the amount of P-4 material is less than or equal to 60%, two options are available to determine the angle of internal friction. The first method is to perform a fractured faces count, per ASTM 5821, on the R-4 material. If more than 90% of the material is fractured on one face and more than 50% is fractured on two faces, the material meets the specifications and the angle of internal friction can be assumed to be 30 degrees. The second method allows testing all P-1" material, as per AASHTO T-236, with a large shear box. Test results of this second method may allow the use of larger angles of internal friction, up to the maximum allowed by this specification.

Prior to placement of the backfill, obtain and furnish to the engineer a certified report of test results that the backfill material complies with the requirements of this specification. Specify the method used to determine the angle of internal friction. This certified report of test shall be less than 6 months old. Tests will be performed by a certified independent laboratory. In addition, when backfill characteristics and/or sources change, provide a certified report of tests for the new backfill material. Additional certified report of tests (except Angle of Internal Friction test), are also required. These additional backfill tests may be completed at the time of material production or material placement, with concurrence of the engineer. If this additional testing is completed at the time of material production, complete testing for every 2000 cubic yards of backfill or portion thereof. If this additional testing is completed at the time of material placement, complete testing for every 2000 cubic yards of backfill, or portion thereof, used per wall. All certified report of these test results shall be less than 6 months old and performed by a certified independent laboratory.

## C Construction

### C.1 Methods

All excavation and preparation of the foundation for the Temporary Wire Faced Mechanically Stabilized Earth wall shall be in accordance to standard spec 206. The volume of excavation covered is limited to the width of the reinforced mass and to the depth of the bottom of the wall unless shown or noted otherwise on the plan. At the end of each working day, provide good temporary drainage such that the backfill shall not become contaminated with run-off soil or water if it should rain. Do not stockpile or store any materials or large equipment within 10 feet of the back of the wall.

Stagger vertical joints in the welded wire facing.

Compact all backfill behind the wall as specified in standard spec 207.3.6. Compact the backfill to 95.0% of maximum dry density as determined by AASHTO T-99 (modified to compute densities to the nearest 0.1 pcf) or as modified as follows. If the gradation of the granular backfill is such that the P-200 material is less than 7% and the P-40 is less than 30%, a one-point Proctor test can be conducted in place of the 5-point Proctor. To complete this one-point test, compact the sample at a moisture content of 6%, then compute the actual (as-tested) sample moisture after completion of the test. Use Method B or D, and perform this test without removing oversize particles and without correction for coarse particles, as per AASHTO T224. The one-point as-tested moisture content represents the optimum moisture, and the measured one-point density represents the maximum wet density of the material. From these values, the maximum dry density can be computed.

Ensure adequate moisture is present in the backfill during placement and compaction to prevent segregation and to help achieve compaction.

Compaction of backfill within 3 feet of the back face of the wall should be accomplished using lightweight compaction devices. Use of heavy compaction equipment or vehicles should be avoided within 3 feet of the wall face.

Erect welded wire facing and other associated elements according to the wall manufacturer's construction guide. Place and compact the MSE backfill to the level of the next higher layer of MSE reinforcement before placing the MSE reinforcement or connecting it to the wall facing. Place remaining courses in vertical or battered positions as shown on the contract plans.

The MSE reinforcement shall lay horizontally on top of the most recently placed and compacted layer of MSE backfill. Bending of MSE reinforcement that result in a kink in the reinforcement shall not be allowed. If skewing of the reinforcement is required due to obstructions in the reinforced fill, the maximum skew angle shall not exceed 15 degrees from the normal position unless a greater skew angle is shown on the wall shop drawings. The adequacy of the skewed reinforcement in such a case shall be addressed by supporting calculations.

When the wall is considered temporary (but will have any geotextile material exposed to ultraviolet light for four months or more), or the installation of a permanent wall facing will not occur for four months or more after placement of any geotextile material, cover the exposed geotextile material in the wall as quickly as practical, to prevent damage caused by exposure to ultraviolet light.

**C.2 Tolerances**

The overall vertical tolerance of the wall and the horizontal alignment tolerance shall not exceed 3 inches per 10 feet for temporary installations.

For battered wire facing, the final deviation from the design batter shall be within ±1 inch for each 10 feet of battered wall height.

**C.3 Quality Management Program**

**C.3.1 Quality Control Plan**

Submit a comprehensive written quality control plan to the engineer at or before the pre-construction meeting. Do not perform MSE wall construction work before the engineer reviews and accepts the plan. Construct the project as the plan provides.

Do not change the quality control plan without the engineer's review and acceptance. Update the plan with changes as they become effective. Provide a current copy of the plan to the engineer and post in the contractor's laboratory as changes are adopted. Ensure that the plan provides the following elements:

1. An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of QC personnel.
2. The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication process that will be used, and action time frames.
3. A list of source locations, section and quarter descriptions, for all aggregate materials requiring QC testing.

4. Descriptions of stockpiling and hauling methods.
5. An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.
6. Location of the QC laboratory, retained sample storage, and other documentation.
7. A summary of the locations and calculated quantities to be tested under this provision.

**C.3.2 Quality Control Personnel**

Perform the quality control sampling, testing, and documentation required under this provision using HTCP certified technicians. Have a HTCP Level I Grading Technician, Level I Aggregate Technician, or Assistant Certified Aggregate Technician (ACT) present at the each grading site during all wall backfill placement, compaction, and nuclear testing activities. Have a HTCP Level I Nuclear Density Technician or Assistant Certified Nuclear Density Technician (ACT) perform field density and field moisture content testing.

If an Assistant Certified Technician (ACT) is performing sampling or testing, a certified technician must coordinate and take responsibility for the work an ACT performs. Have a certified technician ensure that all sampling and testing is performed correctly, analyze test results, and post resulting data. No more than one ACT can work under a single certified technician.

**C.3.3 Equipment**

Furnish the necessary equipment and supplies for performing quality control testing. Ensure that all testing equipment conforms to the equipment specifications applicable to the required testing methods. The engineer may inspect the measuring and testing devices to confirm both calibration and condition. Calibrate all testing equipment according to the CMM and maintain a calibration record at the laboratory.

Furnish nuclear gauges from the department's approved product list at http://www.atwoodsystems.com/materials. Ensure that the gauge manufacturer or an approved calibration service calibrates the gauge the same calendar year it is used on the project. Retain a copy of the calibration certificate with the gauge.

Conform to ASTM D 6938 and CMM 8.15 for density testing and gauge monitoring methods. Perform nuclear gauge measurements using gamma radiation in the backscatter or direct transmission position. Perform each test for 4 minutes of nuclear gauge count time.

Split each Proctor sample and identify so as to provide comparison with the department's test results. Unless the engineer directs otherwise, retain the QC split samples for 14 calendar days and promptly deliver the department's split samples to the department

### C.3.4 Quality Control (QC) Testing

Perform compaction testing on the backfill. Conform to CMM 8.15 for testing and gauge monitoring methods. Conduct testing at a minimum frequency of 1 test per 150 cubic yards of backfill, or major portion thereof. A minimum of one test for every lift is required. Deliver documentation of all compaction testing results to the engineer at the time of testing.

Perform 1 gradation test every 750 cubic yards of fill and one 5-point Proctor test (or as modified in C.1) every 2000 cubic yards of fill. Provide the region split samples of both within 72 hours of sampling, at the region laboratory. Test sites shall be selected using ASTM Method D3665. Provide Proctor test results to the engineer within 48 hours of sampling. Provide gradation test results to the engineer within 24 hours of sampling.

### C.3.5 Department Testing

#### C.3.5.1 General

(1) The department will conduct verification testing to validate the quality of the product and independent assurance testing to evaluate the sampling and testing. The department will provide the contractor with a listing of names and telephone numbers of all QV and IA personnel for the project, and provide test results to the contractor within 2 business days after the department obtains the sample.

#### C.3.5.2 Quality Verification (QV) Testing

(1) The department will have an HTCP technician, or ACT working under a certified technician, perform QV sampling and testing. Department verification testing personnel must meet the same certification level requirements specified in C.3.2 for contractor testing personnel for each test result being verified. The department will notify the contractor before sampling so the contractor can observe QV sampling.

(2) The department will conduct QV tests at the minimum frequency of 30% of the required contractor density, Proctor and gradation tests.

(3) The department will locate density tests and gradation samples randomly, at locations independent of the contractor's QC work. The department will split each Proctor and gradation QV sample, testing half for QV, and retaining the remaining half for 10 business days.

(4) The department will conduct QV Proctor and gradation tests in a separate laboratory and with separate equipment from the contractor's QC tests. The department will use the same methods specified for QC testing.

(5) The department will assess QV results by comparing to the appropriate specification limits. If QV test results conform to this special provision, the department will take no further action. If density QV test results are nonconforming, the area shall be reworked until the density requirements of this special provision are met. If the gradation test results are nonconforming, standard spec 106.5 will apply. Differing QC and QV nuclear density values of more than 1.5 pcf will be investigated and resolved. QV

density tests will be based on the appropriate QC Proctor test results, unless the QV and QC Proctor result difference is greater than 3.0 pcf. Differing QC and QV Proctor values of more than 3.0 pcf will be investigated and resolved.

### C.3.5.3 Independent Assurance (IA)

(1) Independence assurance is unbiased testing the department performs to evaluate the department's QV and the contractor's QC sampling and testing, including personnel qualifications, procedures, and equipment. The department will perform an IA review according to the department's independent assurance program. That review may include one or more of the following:

1. Split sample testing.
2. Proficiency sample testing.
3. Witnessing sampling and testing.
4. Test equipment calibration checks.
5. Reviewing required worksheets and control charts.
6. Requesting that testing personnel perform additional sampling and testing.

(2) If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend placement until action is taken. Resolve disputes as specified in C.3.5.4.

### C.3.5.4 Dispute Resolution

(1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate sampling and testing procedures, and perform additional testing. Use ASTM E 178 to evaluate potential statistically outlying data.

(2) Production test results, and results from other process control testing, may be considered when resolving a dispute.

(3) If the project personnel cannot resolve a dispute, and the dispute affects payment or could result in incorporating non-conforming product or work, the department will use third party testing to resolve the dispute. The department's central office laboratory, or a mutually agreed on independent testing laboratory, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent laboratory. The department may use third party test results to evaluate the quality of questionable materials and determine the appropriate payment. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

### C.4 Geotechnical Information

Geotechnical data to be used in the design of the wall is given on the wall plan. After completing wall excavation of the entire reinforced soil zone, notify the department and allow the Regional Soils Engineer two working days to review the foundation.

### D Measurement

The department will not measure Temporary Wall Wire Faced Mechanically Stabilized Earth Wall LRFD/QMP. The department will use pay plan quantity according to the Pay Plan Quantity article. No other measurement of quantities shall be made in the field. Unless the engineer directs in writing, a change to the limits indicated on the contract plan, wall area constructed above or below these limits will not be measured for payment.

### E Payment

The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0165.4770 | Temporary Wall Wire Faced Mechanically Stabilized Earth LRFD/QMP | SF |

Payment is full compensation for supplying a design and shop drawings; preparing the site, including all necessary excavation and disposal of materials; supplying all necessary wall components to produce a functional system constructing the retaining system, including drainage system; providing backfill, backfilling, compacting, developing/completing/documenting the quality management program, performing compaction testing; and for covering the geotextile. Parapets, railings, abutment bodies and other items above the wall cap or coping will be paid for separately. Vehicle barrier and its support will be paid separately.

Any required topsoil, fertilizer, seeding or sodding and mulch will be paid for at the contract unit price of topsoil, fertilizer, seeding or sodding and mulch, respectively.

## 387. Temporary Shoring Railroad, Item SPV.0165.4775.

### A Description

This special provision describes furnishing and installing temporary shoring at locations alongside railroad tracks as shown in the plan and in accordance to the shoring design requirements.

### B Materials

#### B.1 Shoring Design

Provide an effective shoring system capable of withstanding Coopers E-80 live load surcharge, and which is in compliance with OSHA and Federal Railroad Administration (FRA) requirements. For reference, use “Guidelines For Temporary Shoring” published by Union Pacific Railroad and The Burlington Northern and Santa Fe Railway (BNSF). A copy of these guidelines may be obtained from the department at the Bureau of Railroads and Harbors, 4802 Sheboygan Avenue, Madison, Room 701. Where conflicts exist, the standard specifications, special provisions and plans shall supercede these guidelines.

Refer to standard spec 107.17.1(6) and (7) regarding the development and submittal of shop drawings, detailed plans, and computations for temporary construction near the UPRR's tracks. Include in the submitted drawings and plans the proposed method of installation and removal of the shoring not included in the contract plans. In all calculations, take into consideration railroad surcharge loading and design the shoring to meet Coopers E-80 live loading.

**C Construction**

The UPRR will coordinate train operations with the contractor to the extent possible, consistent with its operational requirements. The number and duration of work windows free of train operations available per day will vary depending on operational requirements. At the end of each window, leave the construction area in a condition that will allow for safe and normal train operations. Do not leave shoring extended above the top of rail within 12'-0" from the centerline of the nearest track. Train operations and available windows for work and hours available for work within windows are subject to change. Contact the following at least three working days in advance of construction operations that require implementation of the temporary shoring:

John Venice
Manager of Special Projects – Industry and Public Projects,
Engineering Department
Union Pacific Railroad Company
101 North Wacker Drive, Suite 1920
Chicago, IL 60606
Telephone: (312) 777-2043
Fax: (402) 233-2769
Email jnvenice@up.com

Provide, install and maintain adequate protection for people within the UPRR's right-of-way. Cover, guard, and/or protect all excavations, holes, or trenches within the UPRR's right-of-way when they are not being worked on. When leaving work site areas at night and over weekends, secure the areas and leave them in a condition that will ensure that railroad employees and other personnel, who may be working or passing through the area, are protected around excavations. Install handrails that are parallel to the track and not less than 9'-0" from the centerline of the nearest track. Handrails, fences, or other barrier methods must meet OSHA and FRA requirements. Backfill all excavations as soon as possible.

Upon completion of the need for the temporary shoring, remove the shoring or cut-off the shoring 4'-6" below the top of the adjacent rail. Backfill the space that is excavated but not occupied by the new permanent construction in accordance to standard spec 206.3.13.

**D Measurement**
The department will measure Temporary Shoring Railroad in area by the square foot, acceptably completed at locations the plans show, measured as the area of exposed face in the plane of the shoring from the ground line in front of the shoring to a maximum of one foot above the retained grade. Shoring used for staged construction in multiple configurations without removal and reinstallation will be measured once based on the configuration with the largest area of exposed face.

**E Payment**
The department will pay for the measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0165.4775 | Temporary Shoring Railroad | SF |

Payment is full compensation for providing a verified design of the shoring; providing shop drawings and detailed plans; furnishing and hauling materials to each location; installing the shoring; maintaining the shoring as needed; removing the shoring; and for backfilling upon completion of the need for the shoring.

Temporary shoring not required by the plans and installed for the convenience of the contractor's operations shall be considered incidental to work under this contract and will not be measured and paid for under this item.

## 388. Geocomposite Drain Board, Item SPV.0165.4780.

**A Description**
This special provision describes supplying and installing prefabricated geocomposite drain board as indicated on the plans. Perform work in accordance to pertinent provisions of the standard specifications, the plans, and as hereinafter provided.

**B Materials**
Use materials that conform to the following:

| Physical Properties | Test Method | Value |
|---|---|---|
| Thickness | | 0.25 inch |
| Flow capacity, (at 3600 psi with I = 1) | ASTM D 4716 (mod) | 9 gpm/ft |
| Geotextile tensile strength | ASTM D 4632 | 100 lb |
| Compressive strength | ASTM D 1621 (mod) | 10,000 lbs/SF |
| Mullen burst | ASTM D 3786 | Min. 200 lb |
| Apparent opening size | ASTM D 4751 | 70 |
| Flow rate | ASTM D 4491 | Min 140 gpm/SF |

**C Construction**
Handle the prefabricated geocomposite drainage board in such a manner as to ensure the geocomposite is not damaged in any way. Take care during the placement of the geocomposite not to entrap dirt or excessive dust in the geocomposite that could cause

clogging of the drainage system. Deliver, store, and handle the geocomposite in accordance to manufacturer's recommendations. Place and secure geocomposite against the retaining wall back face as indicated on the plans with the fabric facing outward towards the backfill. Make seams and overlaps between adjacent boards according to the manufacturer's recommendations and specifications.

**D Measurement**

The department will measure Geocomposite Drain Board in area by the square foot, acceptably completed. The department will not pay for repairs to the geocomposite and will not pay for overlap of drain elements.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0165.4780 | Geocomposite Drain Board | SF |

Payment is full compensation for furnishing, installing, and trimming all materials; and for furnishing all equipment, fasteners, and incidentals necessary to complete the contract work.

## 389. Concrete Staining Previously Constructed Structure, Item SPV.0165.4785.

**A Description**

Furnish and apply a two coat concrete stain to the exposed concrete surfaces of structures constructed but not stained in a prior contract, as detailed in the plans and as hereinafter provided.

**B Materials**

**B.1 Concrete Stain**

Use concrete stain manufactured for use on exterior concrete surfaces, consisting of a base coat and a pigmented sealer finish coat. Use the following products, or equal as approved by the department, as part of the two coat finish system:

Tri-Sheen Concrete Surfacer, Smooth by TK Products
Tri-Sheen Acrylic by TK Products
TK-1450 Natural Look Urethane Anti-Graffiti Primers by TK Products
Safe-Cure and Seal EPX by Chem Masters
H&C Concrete Stain Solid Color Water Based by Sherwin-Williams

**B.2 Mortar**
Use mortar for the modified concrete surface finish as specified in 502.3.7.5 or use one of the following products:

| | |
|---|---|
| Preblended, Packaged Type II Cement: | Tri-Mix by TK Products<br>Thoroseal Pearl Gray by Thoro Products |

The mortar shall contain one of the following acrylic bonding admixtures mixed and applied in accordance to manufacturer's recommendations:

| | |
|---|---|
| Acrylic Bonding Admixture: | TK-225 by TK Products<br>Achro 60 by Thoro Products<br>Achro Set by Master Builders |

**C Construction**
**C.1 General**
Furnish, prepare, apply, cure, and store all materials in accordance to the product manufacturer's specifications for the type and condition of application required.

Match or exceed the stain manufacturer's minimum recommended curing time of the concrete or 28 days, whichever is greater, prior to staining.

**C.2 Modified Concrete Surface Finish**
If not previously completed, provide a modified surface finish by filling all air holes as the engineer directs using mortar as defined in B.2. Before applying the modified surface finish, saturate the concrete surface with water and fill all tie rod holes and large cavities, and remove or correct all fins and irregularities as specified in 502.3.7.1 and 502.3.7.2.

Following the application of the modified concrete surface finish, , clean all concrete surfaces that are to be coated to ensure that the surface is free of all laitance, dirt, dust, grease, efflorescence, and any foreign material and that the surface will accept the coating material according to product requirements. As a minimum, clean the surface using a 3000-psi water blast. Hold the nozzle of the water blaster approximately 6 inches from the concrete surface and move it continuously in a sweeping motion. Give special attention to smooth concrete surfaces to produce an acceptable surface texture. Correct any surface problems resulting from the surface preparation methods. Grit blasting of the concrete surface is not allowed.

**C.3 Staining Concrete Surfaces**
Apply the concrete stain in accordance to the manufacturer's recommendations.

Apply the concrete stain when the temperature of the concrete surface is 45º F or higher, or as given by the manufacturer.

The color of the stain shall be as given on the plan. Tint the base coat to match the finish coat; the two coats shall be compatible with each other.

Do not begin staining the structure until earthwork operations are completed to a point where this work can begin without receiving damage. Where this work is adjacent to exposed soil or pavement areas, provide temporary covering protection from overspray or splatter.

**C.4 Test Areas**
Prior to applying stain to the structure, apply the stain to sample panels measuring a minimum of 48-inches x 48-inches and constructed to demonstrate workmanship in the use of the form liner specified on the structure if applicable. Match or exceed the stain manufacturer's minimum recommended curing time of the concrete or 28 days, whichever is greater, prior to staining. Prepare the concrete surfaces of the sample panels and apply stain using the same materials and in the same manner as proposed for the structure, including staining of the joints between the stones produced by the form liner if applicable. Do not apply stain to the structure until the department approves the test panels.

**C.5 Surfaces to be Coated.**
Apply concrete stain to the surfaces in accordance to the plan.

**D Measurement**
The department will measure Concrete Staining Previously Constructed Structure in area by the square foot of surface, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0165.4785 | Concrete Staining Previously Constructed Structure | SF |

Payment is full compensation for furnishing and applying the two coat system; for preparing the concrete surface with a modified surface finish; and for preparing the sample panels.
517-110 (20140630)

## 390. Concrete Staining Multi-Color Previously Constructed Structure, Item SPV.0165.4786.

**A Description**
Furnish and apply a multi-color concrete stain to the exposed concrete surfaces of the structure, as detailed in the plans and as hereinafter provided.

**B Materials**
**B.1 Concrete Stain**
Use concrete stain manufactured for use on exterior concrete surfaces. Use the following products, or equal as approved by the department:

Tri-Sheen Concrete Surfacer, Smooth by TK Products
Tri-Sheen Acrylic by TK Products
TK-1450 Natural Look Urethane Anti-Graffiti Primers by TK Products
Safe-Cure and Seal EPX by Chem Masters
H&C Concrete Stain Solid Color Water Based by Sherwin-Williams

**B.2 Mortar**

Use mortar for the modified concrete surface finish as specified in 502.3.7.5 or use one of the following products:

| | |
|---|---|
| Preblended, Packaged Type II Cement: | Tri-Mix by TK Products |
| | Thoroseal Pearl Gray by Thoro Products |

The mortar shall contain one of the following acrylic bonding admixtures mixed and applied in accordance to manufacturer's recommendations:

| | |
|---|---|
| Acrylic Bonding Admixture: | TK-225 by TK Products |
| | Achro 60 by Thoro Products |
| | Achro Set by Master Builders |

**C Construction**

**C.1 General**

Furnish, prepare, apply, cure, and store all materials in accordance to the product manufacturer's specifications for the type and condition of application required.

Match or exceed the stain manufacturer's minimum recommended curing time of the concrete or 28 days, whichever is greater, prior to staining.

**C.2 Modified Concrete Surface Finish**

If not previously completed, provide a modified surface finish by filling all air holes as the engineer directs using mortar as defined in B.2. Before applying the modified surface finish, saturate the concrete surface with water and fill all tie rod holes and large cavities, and remove or correct all fins
and irregularities as specified in 502.3.7.1 and 502.3.7.2.

Following the application of the modified concrete surface finish, clean all concrete surfaces that are to be coated to ensure that the surface is free of all laitance, dirt, dust, grease, efflorescence, and any foreign material and that the surface will accept the coating material according to product requirements. As a minimum, clean the surface using a 3000-psi water blast. Hold the nozzle of the water blaster approximately 6 inches from the concrete surface and move it continuously in a sweeping motion. Give special attention to smooth concrete surfaces to produce an acceptable surface texture. Correct any surface problems resulting from the surface preparation methods. Grit blasting of the concrete surface is not allowed.

**C.3 Staining Concrete Surfaces**
Apply the concrete stain in accordance to the manufacturer's recommendations.

Apply the concrete stain when the temperature of the concrete surface is 45º F or higher, or as given by the manufacturer.

The color of the staining shall produce a multi-color effect that consists of multiple colors replicating varying natural stone coloration. Stain the joints between stones produced by the form liner to create the appearance of grouted joints.

Do not begin staining the structure until earthwork operations are completed to a point where this work can begin without receiving damage. Where this work is adjacent to exposed soil or pavement areas, provide temporary covering protection from overspray or splatter.

**C.4 Test Areas**
Prior to applying stain to the structure, apply the stain to sample panels measuring a minimum of 48-inches x 48-inches and constructed to demonstrate workmanship in the use of the form liner specified on the structure if applicable. Match or exceed the stain manufacturer's minimum recommended curing time of the concrete or 28 days, whichever is greater, prior to staining. Submit color samples to the department prior to staining the sample panels. Prepare the concrete surfaces of the sample panels and apply stain using the same materials and in the same manner as proposed for the structure, including staining of the joints between stones produced by the form liner. Do not apply stain to the structure until the department approves the test panels.

**C.5 Surfaces to be Coated.**
Apply concrete stain to the surfaces in accordance to the plan.

**D Measurement**
The department will measure Concrete Staining Multi-Color Previously Constructed Structure, in area by the square foot of surface, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0165.4786 | Concrete Staining Multi-Color Previously Constructed Structure | SF |

Payment is full compensation for furnishing and applying the coloring system; for preparing the concrete surface with a modified surface finish; and for constructing and staining the sample panels.

## 391. Prestressed Precast Concrete Wall Panel, Item SPV.0165.4790.

### A Description

This section describes constructing prestressed precast concrete wall panels with thickness and patterns as shown on the plans including product design, fabrication, transportation, erection, and other related items.

These specifications provide for prestressing concrete panels by the pretensioning method. In this method, stress the reinforcing tendons initially, then place and cure the concrete and release the stress from the anchorages to the concrete after developing specified concrete strength.

Design shall be in accordance to the AASHTO LRFD Bridge Design Specifications, Sixth Edition 2012 and applicable interim specifications. The design life of the precast concrete wall panels and all panel components shall be 75 years.

### B Materials

#### B.1 General

Furnish materials conforming to the following:

| | |
|---|---|
| Masonry Anchors | standard spec 502 |
| Coated High Strength Bar Steel Reinforcement | standard spec 505 |
| Pretensioning Reinforcement | standard spec 503 |
| Welded Steel Wire Fabric for Concrete Reinforcement | standard spec 505 |
| Structural Steel and Miscellaneous Metals | standard spec 516 |
| Elastomeric Bearing Pads | standard spec 506 |

Galvanize, furnish stainless steel materials for all hardware incorporated into the finished structures.

#### B.2 Concrete

Furnish concrete as specified in standard spec 501.

Ensure concrete attains a minimum 28-day compressive strength of 5000 pounds per square inch. Base all tests on 6 inch by 12-inch cylinders, or 4 inch by 8-inch cylinders, provided the engineer develops and approves a correlation factor. Mold concrete cylinders in suitable steel or plastic molds. Cure concrete cylinders according to AASHTO T 23, except cure the cylinders with the member until release strength is obtained, then cure the cylinders according to AASHTO T 23.

The contractor shall make and test the cylinders and make available to the engineer all information relating to the making and testing of cylinders. Notify the engineer immediately if concrete cylinder compressive strengths are less than the required 28-day strength. Keep neatly documented records of all cylinder testing on the day of the test and make them available to the engineer. Provide copies of the tests to the engineer by contract completion.

Furnish prestressed concrete panels cast from air entrained concrete. Use type I, IS, I(SM), IP, II, or III cement. The contractor may replace up to 30 percent of type I, II, or III portland cement with an equal weight of fly ash conforming to standard spec 501.2.6 or slag conforming to standard spec 501.2.7. Use only one source and replacement rate for work under a single bid item. Use a department-approved air entraining admixture conforming to standard spec 501.2.2 for air entrained concrete. Use only size No. 1 coarse aggregate conforming to standard spec 501.2.5.4.

The contractor shall determine proportions for the mix within the following limitations:

| | |
|---|---|
| Water cement ratio | not greater than 0.42 |
| Cement content, pounds per cubic yard of concrete | 610-800 |
| Air content of concrete, percent maximum | 3.5-6.0 |

If the mix does not contain a high range water reducer admixture, use a department-approved set retarding admixture as specified in standard spec 501.2.3.2 at the recommended rate if the ambient air temperature is 70 degrees F (21 degrees C) or higher. The contractor may use it if the ambient air temperature is less than 70 degrees F (21 degrees C).

The contractor shall not add more admixtures or water after mixing is complete.

Use admixtures that do not contain chlorides.

Use admixtures that are compatible with all ingredients of the concrete mixture.

**B.3 Pretensioning Reinforcement**
Use high tensile strength, 7-wire strands conforming to ASTM A 416, grade 270.

**B.4 Plant Certification**
Obtain all precast concrete wall panels from fabrication plants that comply with the department's plant certification program for prestress concrete, unless the engineer agrees to accept these items according to the alternate procedures set forth in the department's plant certification program.

**B.5 Lifting Devices**
The type, number and locations of lifting devices and the method of handling the architectural precast panels is determined by the fabricator and approved by the engineer. Do not locate lifting devices in the surface of the panel facing toward the road.

**B.6 Accessories and Inserts**

Materials:

Shims: High-density plastic or galvanized steel, 1/8-inch thick, smooth both sides

Carbon steel plate: ASTM A 283

Welded headed studs: AWS D1.1 – Type B

Bolts, nuts, rods, washers: standard spec 506.2

Joint Material: Closed cell 100% virgin chloroprene (neoprene) filler meeting Division II section 18 of the AASHTO Specifications for Highway Bridges.

Inserts: Galvanized with minimum 12 Gage steel conforming to ASTM A1011 SS GR 33 or ASTM A653 GR 33 A. Inserts anchors to have 1 1/2-inch minimum cover.

Zinc coated fabrications: Conform to ASTM 385 for fabricating zinc coated work.

**C Construction**

**C.1 Design Requirements**

Design panels and components to withstand initial handling, transportation, and erection stress limits; dead loads; wind load of 40 pounds per square foot; thermal stresses; and other loads specified. In addition to the above loads also design inserts and connection assembles for the loads indicated on the plans and a horizontal force equal to at least 20% of the dead weight of the panel.

Provide a minimum prestress of 250 psi and minimum temperature and shrinkage reinforcement as required by AASHTO LRFD Bridge Design Specifications Article 5.10.8.

**C.2 Submittals**

Erection drawings shall conform to the contract plans and consist of member piece marks and completely dimensioned size and shape of each member; plans and/or elevations locating and defining all products furnished by manufacturer; sections and details showing connections, cast-in items and their relation to the structure; relationship to adjacent material including footings and copings; joints between members and structure; description of all loose, cast-in and field hardware; field installed anchor location drawings; erection sequences, when required to satisfy stability, and handling requirements; and all dead, live and other applicable loads used in the design.

Production drawings shall conform to the contract plans and consist of elevation view of each member; sections and details to indicate quantities and position of reinforcing steel, anchors, inserts, etc.; handling devices; dimensions and finishes; prestress for strand; concrete strengths; estimated cambers; and methods for storage and transportation.

Submit on request design calculations performed by a registered engineer licensed in the state of Wisconsin experienced in the design of precast prestressed architectural concrete.

Submit samples representative of finished exposed finished face showing typical range of color and texture prior to commencement of production. Samples to be approximately 12 inches x 12 inches and of appropriate thickness and representative of the proposed finished product.

When decorative relief patterns are show on the plans and required to be cast into the face of the panels, provide decorative relief pattern sample panels as required in paragraph C.9.2.

Design modifications necessary to meet performance criteria and field coordination. Variations in details or materials shall not adversely affect the appearance, durability, or strength of units. Maintain general design concept without altering profiles and alignment.

Submit on request reports on materials, compressive strength tests on concrete and water absorption tests on units.

The contractor shall submit to the engineer, for placing on file before commencing, one set of the submittals that the contractor has checked. In addition, provide two sets to the district office and one set to the bureau of structures for inspection purposes. Only then may fabrication commence without awaiting the results of any review the engineer may make. The engineer may refuse prints of submittals that are not clear and legible. If the engineer requests, submit one additional copy of submittals for review. After review, the contractor shall furnish as many copies of submittals as required.

The submittals become a part of the contract, provided any differences between sections on production drawings and sections the plans show are made only if the engineer approves and if the substitution is made at no additional expense to the department.

After initial submittal and review, make no deviation from the production drawings or changes to them without the engineer’s further review.

The engineer's review of submittals means only a review of the character and sufficiency of the details and does not relieve the contractor from responsibility in regard to errors or omissions on those drawings.

**C.3 Mock-up**

After standard samples are accepted for color and texture, fabricate one full size 10-feet wide x 10-feet high minimum panel meeting the design requirements, illustrating shape and patterns, lap joints, joint filler, lifting devices, inserts, and attachment points. Mockup to be standard of quality for precast panel work, when accepted by engineer. Keep mockup in plant for checking purposes.

**C.4 Stressing Procedure**
Stressing procedure shall be in accordance to standard spec 503.3.1. Ensure all the strands of a pretensioned member are free from kinks or twists before starting tensioning operations. Ensure no strand unwinds more than one turn after starting tensioning operations.

Perform transfer of prestress to concrete after the concrete develops the minimum required strength for transfer determined by the test cylinders.

**C.5 Placing and Fastening Steel**
Placing and fastening steel shall be in accordance to standard spec 503.3.1.1. Place all steel units in the position the plans show and hold firmly during concrete placing and setting as specified in standard spec 505.3.

Ensure that all prestressing steel is free of dirt, grease, wax, scale, rust, oil, or other foreign material that may prevent bonding between the steel and the concrete.

**C.6 Placing Concrete**
Handle and place the concrete as specified in standard spec 502.

**C.7 Tolerances**
Cast architectural prestressed precast concrete panels to plan dimensions within the following applicable tolerances:

Overall height of panel measured at the face exposed to view ..... ±1/8-inch per 10 ft.
Overall width of panel measured at the face exposed to view ..... ±1/8-inch per 10 ft.
Total thickness ..... ± 1/4-inch
Structural thickness ..... ± 1/4-inch
Variation from square or designated skew ..... ± 1/2-inch
Local smoothness, unconcealed surfaces ..... ± 1/4-inch per 10 ft.
Bowing ..... ± Length/360, to a maximum of 1-inch
Warp (from adjacent corner) ..... ± 1/16-inch per ft.
Location of inserts ..... ±1/2-inch
Tipping and flushness of inserts ..... ± 1/4-inch
Position of handling devices ..... ± 3-inch
Reinforcing steel:
Where position has structural implications or affects
concrete cover ..... ± 1/4-inch
Otherwise ..... ± 1/2-inch
Location of strand:
Perpendicular to panel ..... ± 1/4-inch
Parallel to panel ..... ±1-inch
Dimensions of architectural features and rustications ..... ±1/4-inch

**C.8 Curing**
Cure concrete in accordance to standard spec 503.2.2.

**C.9 Surface Finish**
Unless otherwise indicated on the plans, provide a rubbed surface finish on the exposed surfaces of prestressed concrete panels as specified in standard spec 502.3.7.3 before shipping from the plant. Exposed face to match approved mockup panels. Use rigid molds to maintain panels within specified tolerances conforming to shape, lines, and dimensions shown on the production drawings. Construct molds to withstand vibration method selected.

Coat bottom of panels with bitumastic after cutting strands flush. Do not coat top of panels.

**C.9.1 Decorative Relief Patterns**
When shown on the plans, provide prestressed precast panels with decorative relief patterns, decorative form liner treatments, or textured surface finishes as shown in the plans. The exposed surfaces must match approved sample panels. Electronic files of the decorative patterns are available from Wisconsin Department of Transportation, Jeff Bohen, P.E., 141 NW Barstow Street, Waukesha, Wisconsin 53187, (414) 750-2928.

**C.9.2 Decorative Relief Pattern Sample Panels**
When the plans call for prestress precast panels with decorative relief patterns, decorative form liner treatments or textured surface finishes, supply to the engineer a minimum of two non-production test panels with the decorative details as shown in the plans. Sample panels shall be at nominally 5 feet by 5 feet or larger in size to sufficiently demonstrate the finished appearance of the decorative relief pattern shown in the plans. The submitted test panels shall fit together to demonstrate the continuation of the decorative relief patterns, form liner treatments, and textured surface finishes across vertical panel joints. Obtain the engineer's acceptance of the decorative patterned sample panels, prior to production of the decorative relief patterned panels required for the contract. Only one set of accepted decorative sample panels for prestressed precast concrete wall panels is required per contract.

**C.10 Erection**
Erect panels without damage to shape or finish. Replace or repair damaged panels.

Place precast concrete wall panels so that their final position is vertical. Ensure that the vertical joint openings between panels are uniform and that decorative patterns between panels are aligned.

When panels require adjustment beyond design or tolerance criteria, discontinue affected work; advise engineer.

Verify structure, footings, anchors blocks, rods, couplers, clevises, and other anchor devices are ready to receive panels. Verify that wall panel footings are placed at the proper horizontal and vertical alignments and are ready to the receive wall panels. Place elastomeric pad and shims behind panels to ensure proper horizontal alignment. Set panels on elastomeric bearing pads and shims and install base angles at ends of panels. Shim vertical joints to get proper opening. Install and compress neoprene joint filler in the lap joints between panels. Fasten top of panels to deadman anchor block assembles at MSE walls, to top of drilled shafts at secant pile walls, and to top of concrete at existing walls, as shown on the plans.

Touch-up scratched or damaged galvanized surfaces.

**C.11 Erection Tolerances**

Plan location from wall reference line ..... ± 1/2-inch
Plan location from wall alignment ..... ± 1/2-inch
Top elevation from nominal top elevation ..... ± 1.4-inch
Support elevation from nominal elevation:
    Maximum low ..... 1/2-inch
    Maximum high ..... 1/4-inch
Plumb in any 10 ft. of panel height ..... ± 1/4-inch
Maximum offset of matching edges and decorative patterns ..... ± 1/4-inch
Maximum offset of matching faces ..... ± 1/4-inch
    Joint width (governs over joint taper) ..... ± 1/4-inch
Joint taper maximum ..... ± 3/8-inch
Joint taper over 10 ft. length ..... ± 1/4-inch
Differential bowing or camber as erected between
adjacent members of the same design ..... ± 1/4-inch

**C.12 Adjusting**

Adjust panels so joint dimensions are within tolerances.

**D Measurement**

The department will not measure Prestressed Precast Concrete Wall Panel. The department will use pay plan quantity according to the Pay Plan Quantity article. Any modifications to the contract quantity caused by corrections or revisions of the original contract plan, which have been approved by the engineer, will be measured by the square foot on a vertical plane between a line at the finished grade in front of the panel and a line indicating the top of wall including wall cap or coping as shown on the plans. Unless ordered by the engineer, panel area below or above these lines will not be measured for payment.

**E Payment**

The department will pay for plan quantities according to the Pay Plan Quantity article at the contract panel price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0165.4790 | Prestressed Precast Concrete Wall Panel | SF |

Payment is full compensation for preparing the design drawings and calculations, production drawings, and coordination; for providing prestressed precast wall panels, including all concrete, grout, mortar, reinforcement steel, tie bars, bearing pads, shims, masonry anchors, filler, anchor plates, angles, slotted inserts and other embedded metal; for casting, curing and finishing concrete; for providing decorative relief patterns, decorative form liner treatments and textured surface finishes; providing sample panels; for jacking and prestressing; and for furnishing all handling, hauling and erecting. Parapets, railings, abutment bodies and other items above the wall panel cap or coping will be paid for separately. Deadmen anchor blocks, rods, couplers and clevises will be paid for separately. Construction of foundations and excavation will be paid for separately.

## 392. Structure Waterproofing Special, Item SPV.0165.4795.

### A Description

Work under this item consists of providing and installing exterior waterproofing on the top and sides of buried structures covered by a free draining aggregate layer. Perform work in accordance to pertinent parts of the standard specifications, the plans, and these special provisions.

### B Materials

### B.1 Waterproofing Membrane

### B.1.1 General

Structure Waterproofing Special to be a multi-layered, fabric reinforced, hot applied, rubberized asphaltic waterproofing membrane. Structure Waterproofing Special shall be:

1. Tremco Tremproof 6100
2. Barrett ram Tough 250
3. Hydrotech 6125

Or approved equal.

All waterproofing membrane components and products including concrete primer, fabric reinforcement and protection courses to be the products of one manufacturer specifically intended to work together to form a watertight waterproofing membrane system.

All waterproofing membrane systems shall include and be finished with a suitable protection course, consisting of asphaltic backer board or equivalent designed to protect the reinforced membrane from abrasion, tears, punctures or other damage due to subsequent placement of backfilling materials over the top of the waterproofing membrane. The protection course shall be placed over the membrane and under the drainage layer.

At least 10 days prior to the application of the membrane, submit waterproofing membrane product data to include material safety data sheets and application instructions to the engineer.

**B.1.2 Manufacturer Certification**
The manufacturer of the selected waterproofing membrane system shall provide written certification that the selected waterproofing membrane system is suitable for the intended purpose and application to waterproof the top and sides as shown in the plans for the buried structures included in the contract.

**B.1.3 On-Site Manufacturer Representative**
A representative of the selected waterproofing membrane manufacturer shall be on-site for the first two days of the initial application of the waterproofing membrane to provide training and direction to installers and on-site inspection personnel on the proper application and installation of the waterproofing membrane system.

**B.2 Drainage Layer**
Furnish aggregate conforming to standard spec 310.

**B.3 Geotextile Fabric**
Furnish geotextile fabric conforming to Type DF Schedule B in standard spec 645.2.4.

**C Construction**
**C.1 Waterproofing Membrane**
Allow a minimum of 14-days after concrete placement of the top slab prior to application of water proofing membrane, or longer if required by the manufacturer of the selected waterproofing membrane to be installed. Concrete surface shall be clean and free of dust, foreign and loose matter. Concrete shall be dry and within acceptable temperature range for application of waterproofing membrane as specified by waterproofing membrane manufacturer.

Prepare surface for application of waterproofing membrane and apply primer bonding product as required by the selected waterproofing manufacturer.

Heat and apply rubberized asphaltic waterproofing and fabric reinforcing in accordance to selected waterproofing membrane manufacturer's written installation instructions. At concrete headwalls, secure the up turned edges of the membrane with a termination bar as specified by the manufacturer. The waterproofing membrane shall be finished with a protection course specified by the manufacturer.

Cure membrane as required by the selected waterproofing membrane manufacturer. Do not operate vehicles, machinery or equipment on the completed waterproofing membrane prior to placement of the drainage layer and fill on membrane. As much as practically possible, avoid walking or performing work operations on the uncovered membrane and take necessary precautions to protect the membrane from damage for unavoidable operations.

**C.2 Drainage Layer**
Cover fully cured waterproofing membrane with free draining aggregate layer as shown in the plans. Use suitable procedures and equipment and exercise care in delivery and placement of the aggregate drainage layer so as not to damage or compromise the

waterproofing membrane. The aggregate drainage layer shall be continuous and connected hydraulically to the perforated drain tiles on each side of the top slab to create a path for surface water seepage to drain off the top of buried structures.

Cover the aggregate drainage layer with geotextile fabric in accordance to standard spec 645.3.4 prior to placement of fill on top of the aggregate layer.

**D Measurement**
The department will measure Structure Waterproofing Special by the square foot, acceptably completed.

**E Payment**
The department will pay for the measured quantity at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0165.4795 | Structure Waterproofing Special | SF |

Payment is full compensation for furnishing and installing the waterproofing membrane including all primer and bonding products, termination bars, reinforcement mats and protection courses; for furnishing and placement of the free draining aggregate layer on the membrane, and for furnishing and placement of geotextile fabric over the drainage layer.

## 393. Shaft Excavation Support System, Item SPV.0165.8095.

**A Description**
This special provision includes the requirements to design/redesign, furnish and install, and remove when applicable, the excavation support system for working shafts at proposed manholes Z2431, Z2623 and Z2683. The contractor shall take ownership of previously excavated and temporarily backfilled shaft at manhole Z2683 under previous contract 1060-33-80. The contractor shall design shaft excavation support systems for shafts Z2431 and Z2623, and assess and redesign (if necessary) the in-place system at shaft Z2683 and construct each shaft excavation support system as recommended in the Geotechnical Baseline Report and in accordance to requirements in this special provision.

**A.1 Qualifications of the Contractor**
The contractor's excavation support system design engineer shall be a professional civil engineer registered in the State of Wisconsin and shall have at least ten years of experience in design and construction of excavation support systems similar to the contractor's proposed system.

**A.2 Design Criteria**
All ground support system elements including shoring and bracing of shaft excavations shall conform to the requirements of Subpart P, Excavations (1926 of 29 CFR) of the Occupational Safety and Health Administration (OSHA).

The design shall provide bottom stability and system stiffness sufficient to meet the contract requirements for control of water and for protection of adjacent work and property. The design shall be compatible with the contractor's selected methods of excavation and control of water. The design shall provide for placement of excavation support systems and removal of the excavation support systems where required and feasible. The design shall provide for construction of the permanent work, and all other construction operations and requirements.

Design shaft excavation support systems and working slabs to withstand earth pressures, groundwater pressures, bottom heave, equipment loads, thrust block loads from pipe jacking, loads from making a portal for tunneling, applicable traffic and construction loads, and other surcharge loads to allow the safe construction of the tunnel without movement or settlement of the ground, and to prevent damage to or movement of adjacent structures, streets, and utilities. Design excavation support systems to be compatible with the geologic conditions described in the Geotechnical Baseline Report and in accordance to AISC and ACI code provisions, as applicable.

Select shaft geometry, size, and type of excavation support system per plans and Geotechnical Baseline Report.

Design each member or support element to support the maximum loads that can occur during construction with appropriate safety factors. The maximum combination of loads or stresses shall be no larger than 67% of the yield strength of the structural members.

Design the support system to minimize horizontal and vertical movements, as per limits delineated in the special provisions, article Geotechnical Instrumentation, and to protect adjacent utilities from damage. The type and stiffness of each ground support system and the methods of ground support installation shall be designed and constructed in order to meet the ground movement limits and adjacent property protection requirements as specified in the special provisions, article Geotechnical Instrumentation.

Design support system to maintain the stability of the excavation against sliding or bottom heave. Provide a minimum factor of safety of 1.5 against sliding. Provide a minimum factor of safety of 1.5 against bottom heave due to adjacent surcharge pressures and hydrostatic uplift pressures or upward seepage pressures.

Employ combinations of walers, struts, tie-back anchors and beams for bracing and lateral support as required to support excavation faces and control groundwater and prevent loss of ground with soldier piles and lagging, liner plate, or other methods of ground support. Provide struts with intermediate vertical and horizontal supports to prevent buckling. Trench shields and/or speed shores are not allowed for shaft construction.

Design a gravel pad or concrete working slab equipped with a sump to pump out construction water and storm water for shaft excavation bottoms to provide stable support for construction operations.

Design for shaft sizes indicated on the drawings.

Design consideration for hydrostatic pressure shall be coordinated with the contractor's water control plan.

The support system shall be designed to ensure that no earth or other loading will be placed on the new structures prior to substantial completion of them and until design strength has been reached. The contractor shall be solely and completely responsible for any damage or loss due to premature loading of the new structures.

The design shall specify the following items as a minimum: repairs or replacement of existing excavation support elements of shaft at manhole Z2683; the quality of materials to be used for excavation support systems; constraints on maximum excavation limits relative to support installation steps; tolerances for size and position of ground support elements; required preloading of excavation support elements; restrictions on surcharge loads and other loads that may act on the excavation support system such as jacking forces and grouting, and groundwater pressures; ground support system and adjacent ground movement limits; provisions for subgrade stability and protection; and constraints on removal of support system elements as the permanent work is constructed and backfilling is completed.

**B Materials**

Materials used in construction of the shaft excavation support systems shall meet these requirements:

- All timber and structural steel used for the supporting systems, whether new or used, shall be sound and free from defects that may impair their strength.

- Structural Steel: Conform to ASTM A572 Grade 50 unless approved otherwise.

- Timber: All timber shall be structural grade with a minimum allowable flexural strength of 1,100 psi.

- Steel Segments (Liner Plates): Segments shall be accurately bent to the approved shape for the proper radius of tunnel section. Rib segments shall fit closely and have bolted butt-plate joint connections. Each plate of every 4th ring fitted with a minimum 1-1/2-inch diameter grout pipe. All steel appurtenances required for the installation of the segments such as bolts, gaskets, shims, spacers, and other necessary accessories shall be provided with the segments. Segments (liner plates), channels, plates, rods, and accessories shall be structural steel conforming to ASTM A36 or ASTM A572. Bolts shall conform to ASTM A325 or A449. Nuts shall conform to ASTM A307, Grade A.

- Contact Grout: Conform to special provisions, article Contact Grouting.

- Anchor Tendons: Conform to ASTM A615 for Grade 60 or 75 or ASTM A722 for Grade 150

- Anchor Grout: The grout shall be a pumpable neat mixture of cement and water and shall be stable (bleed less than 2 percent), fluid, and provide a minimum 28-day compressive strength as per contractor's design. Grout material shall conform to the requirements of standard spec 501.2. Use Type I Portland cement.

## C Construction

### C.1 Submittals

#### C.1.1 General

Prepare and submit qualifications, shop drawings and work plan at the preconstruction meeting or at least 14 calendar days prior to beginning shaft construction, whichever date is earlier. The engineer will accept the submittal as submitted or return the submittal with requested revisions. Do not start any work until the engineer provides acceptance of qualifications, shop drawings and work plan. Acceptance of the submittals does not relieve the contractor of responsibility for successful completion of the shafts.

#### C.1.2 Subsurface Conditions

The contractor review the Geotechnical Baseline Report – South Leg Storm Sewer – Manholes Z2822 to Z2431 (referred as "Geotechnical Baseline Report" herein) for the subsurface conditions.

#### C.1.3 Submittals for Approval

**Excavation Support System Design Engineer Qualifications:** Submit written documentation (including evidence of professional registration in the State of Wisconsin) as supporting evidence of the qualifications of the contractor's engineer.

**Shop Drawings and Work Plan:** Submit plans and shop drawings for shaft excavations, excavation support systems, and other related information. Drawings and calculations shall be prepared and sealed by the contractor's engineer. As a minimum, the submittal shall contain the following information:

a. Construction method to be used for the installation of each system, including sequence of installation and equipment description.
b. Detailed construction sequence for shafts at manholes Z2431, Z2623, and Z2683, at a minimum, addressing penetration of the existing storm sewer pipes, maintenance of existing pipe flow throughout construction course, construction of proposed pipes and manholes, construction of tunnel, replacement of existing excavation support elements (if necessary) of shaft at Z2683.
c. Shop drawings and design calculations showing assumed loading conditions, estimated ground movements, system component design, arrangement of supports and construction sequence for proposed support system(s). Show the elevation of struts, braces, or other supports as related to the depth of excavation at intermediate stages of construction. Provide details of bottom slab, drains, and sump construction. Indicate sizes, shapes, and material specifications for all support elements including lagging, if used. Calculations

shall include estimates of likely deflections or deformations of the support system and maximum tolerable values. Calculations shall also show the shaft wall is able to sustain the maximum jacking forces transferred from the thrust block during pipe jacking.

d. The design and submittal of soldier piles and laggings for shaft excavation support shall, as a minimum, address: interference with utilities; drilled hole advancement, including drilling equipment type, expected hole diameters and methods of maintaining hole stability; structural design of soldier piles, including size, weight, steel grade, depth, and backfill of hole; method of shaft excavating; method of removing boulder obstructions; method of lagging installation and overcut backfilling or contact grouting; and design and installation of any internal bracing or tie-backs.
e. The design and submittal of steel ribs and laggings/ liner plates for shaft support shall as a minimum, address : interference with utilities; structural design of steel ribs and laggings/ liner plates, including size, weight, steel grade, depth; liner plate details, including geometry, joints, connectors (bolts and dowels), compression packings, gaskets, inserts, and accessories; method of assembly; method of shaft excavating; method of removing boulder obstructions; method of lagging/liner plate installation and overcut backfilling or contact grouting; design.
f. A site plan for each shaft indicating utilities, use of access roads, site grading and site development details for the excavation and all work areas, and the proposed limits of disturbance surrounding each excavation.
g. Portal plans indicating support installed to maintain ground support system integrity and stability of the excavation when commencing tunneling and when holing through. Provide details of the portal bracing, seal and ground improvement (if used) needed for face stability and tunnel launching.
h. A work plan for previously excavated shaft under previous contract 1060-33-80 at manhole Z2683 showing tasks, maintenances, and repairs or replacement to damaged excavation support elements, and safety monitoring.

### C.1.4 Information Submittals

**Contractor's Engineer Certification:** Submit to the engineer, no later than the 5th day of each month, a signed and sealed certification (letter, memorandum, or report) by the contractor's engineer that, based on his/her observations, the work completed during the previous month pertaining to design was installed and is performing substantially in accordance to the design concepts prepared by him/her. The contractor's engineer shall also report any significant deviations from the submitted design concepts, any performance concerns observed and actions recommended remediating these items. The contractor's engineer certifications shall be made monthly during a period commencing with the start of excavation and ground support system installation, continuing during portal excavation and pipe jacking operations and ending when the ground support system has been abandoned and backfilled or removed and backfilled.

**As-built Plans:** Submit as-builts of abandoned excavation support systems.

### C.1.5 Acceptance

The engineer will evaluate the Submittals for Approval with the requirements of this special provision. Within 14 calendar days after receipt of the Submittals for Approval, the engineer will notify the contractor of the acceptance of the submittal, or if additional information and/or changes are required. Any unacceptable part of the Submittals for Approval will require resubmission. The contractor must resubmit the Submittals for Approval for evaluation and review with the necessary changes or additional information provided. The engineer will provide a written notice of acceptance or rejection of contractor's resubmitted Submittals for Approval within 14 calendar days after its receipt.

After the engineer's acceptance of Submittals for Approval, no changes to the Submittals for Approval can be made without written consent of the engineer.

All Information Submittals should be submitted to the engineer. The engineer can reject the submittals which do not adequate detail, as required herein. The contractor shall resubmit the rejected submittals within 7 days upon the receipt of the engineer's rejection notice.

### C.2 General Shaft Construction Requirements

The contractor shall review the plans and special provisions of this project to coordinate with utility and abandonment relocation work adjacent to the shaft prior to shaft construction. The contractor shall also provide support and maintain live utilities which penetrate through shaft excavation areas and remove man-made objects and abandoned utilities within the shaft excavation, as discussed in the Geotechnical Baseline Report and as shown in the plans. The effort, material, and labor required to remove, support or avoid the utilities and underground structures during shaft construction shall be deemed as incidental work to shaft construction and shall be at no additional cost to the department.

Excavation support systems for shafts shall consist of drilled-in soldier piles and laggings and steel ribs and laggings/liner plates at shaft locations recommended in the Geotechnical Baseline Report.

The contractor shall design and install shaft ground support systems in accordance to the contract documents and approved submittals. The contractor shall furnish materials for installing, monitoring, maintaining, and removing ground support systems. The contractor's engineer shall maintain involvement and responsibility from design through installation, performance and abandonment or removal of ground support systems.

The contractor shall implement groundwater control measures, as required in the special provisions, article Control of Water. Installation of excavation support systems shall not be done without groundwater control measures.

Whenever necessary to prevent caving during excavation to protect adjacent structures, property, workmen, and the public, adequately support and brace excavations. All shoring and bracing of excavations shall conform to the safety requirements of the Federal, State,

or local public agency having jurisdiction over such matters. The most stringent of these requirements shall apply.

The contractor shall install support systems to permit the safe execution of the work, and to ensure that no ground loading or other loading will be placed on the new work prior to completion and until design strength of the structure being constructed has been reached. During periods of shutdown, fully support the walls of excavations to prevent lost ground. The contractor shall install excavation support systems to minimize loss of soil into the excavations; minimize ground movements outside of the excavations; maintain stability of the excavations; preserve the in-situ strength of surrounding soils; to limit construction-induced vibration. Control vibrations from boulder splitting or installation and removal of excavation support elements to prevent damage to the work and adjacent property. Ground movement and vibration shall be monitored as per special provisions, article Geotechnical Instrumentation.

Skin-tight contact between the ground and the soldier pile and lagging system or the steel ribs and lagging/liner plate system is required and is to be maintained by the contractor's selected means, such as blocking, cribbing, wedging, grouting, or other means compatible with the design of contractor's engineer. For overcut voids over 1/2 inch wide, the contractor shall promptly complete contact grouting as specified in the special provisions, article Contact Grouting. Contact grouting shall be performed to control ground movement into the excavation, and to provide firm and uniform contact between the support system and the ground. Grout holes shall be located as necessary to accomplish the work.

**C.4 Drilled-in Soldier Pile and Lagging Wall**

The contractor shall design soldier pile and lagging wall to allow the penetration of the existing storm sewer pipe. The contractor shall install soldier piles through pre-drilled holes and fill in with concrete. Driven soldier piles are prohibited.

The soldier piles shall be installed within 2 inches of the planned location. The contractor shall replace soldier piles not located within tolerance or damaged due to any cause at no additional cost to the department.

Based on the design of contractor's engineer, soldier piles shall be secured against horizontal or vertical movements or distortion. Laggings shall be assembled true to the lines and grades presented on the approved shop drawings.

Install laggings in conformance with the manufacture's recommendations and in a manner that will not deform or overstress the soldier piles. The contractor shall prevent laggings from deflecting more than contractor's design deflection.

Prior to allowing excavation to stand overnight, advance the laggings to 1 feet above the excavation line and contact grout.

**C.5 Steel Ribs and Laggings/Liner Plates**

The contractor shall design and install steel ribs and laggings/liner plates to allow the penetration of the existing storm sewer pipe. The contractor shall install steel ribs and laggings/liner plates as per approved shop drawings and in conformance with the manufacturer's recommendations.

The contractor shall be prepared to handle wet sand seams and lenses during installation of steel ribs and laggings. The contractor shall avoid ground loss from unstable wet sand seams and lenses, if encountered.

Unsupported excavation is prohibited overnight or for extended periods. The steel ribs and lagging/liner plate system shall be advanced to the bottom of the excavation prior to the end of each work day.

**C.6 Bracing System**

The contractor shall install bracing system consisting of walers, struts or tie-back anchors in the sequence as specified by the contractor's engineer and as detailed in the approved submittal.

Install steel supports true to the line and grades as per approved shop drawings. The contractor shall install steel plates to ensure firm contact between walers (if used) and the soldier piles.

If tie-back anchors are used, the requirements herein shall be followed. The tie-back anchors shall be positioned plus or minus 6 inches from the theoretical elevation shown in the shop drawings. At the point of entry, the anchor shall be installed within plus or minus 3 degrees of the declination from horizontal shown in the shop drawings. Minimum grout cover for tendons shall be ½ inch. Tie-back anchors which do not satisfy the specified tolerances will be replaced at no additional cost to the department.

Anchor holes shall be drilled at the specified locations, angles, lengths and minimum diameters shown on the shop drawings. Over-drilling of holes shall be utilized only if described in approved work plan. The contractor shall check orientation of anchor hole prior to and during drilling. Drilling mud or foam shall not impact ground anchor load transfer.

Immediately prior to tendon installation, flush hole with water to provide saturated soil and concrete surfaces, remove standing water in bottom of hole, and sound hole for compliance with required length. Tendons shall be free of dirt, loose rust, grease, or other deleterious substances and placed in accordance to approved shop drawings. The contractor shall provide rigid and adequate support during placement of grout. The tendon bars shall be continuous, without splices or welds.

The contractor shall place a separate bondbreaker if a corrugated sheath is used or if recommended by the manufacturer. Pump grout to bottom of hole through clean and leak-free grout pipes. If grout inside the sheath is not pre-manufactured, the contractor shall

grout area outside and inside the sheath simultaneously and maintain grout at the same level both inside and outside of the sheath. Grout volume shall be measured and compared to theoretical volume to avoid overfilling hole. Continuously monitor the location of the grout surface using a measuring rod extending through the holes in the tendon base plate to verify that grout is at correct distance from the excavation face. Maintain the tip of the grout pipe below grout surface at all times to avoid entrapping air. After grout operation is complete, allow tendon to remain undisturbed until grout has cured for the time required to reach minimum specified strength, as determined by ASTM C942. If ungrouted length is longer or shorter than the specified length by 1 foot or more, perform following remedial action:

a. Remove tendon, flush hole, and redrill if necessary or remove grout to the required elevation.
b. Replace tendon with new tendon if damaged.

Do not tension tendon before grout has cured for minimum specified time and has attained required strength. Tension tendon by means of equipment recommended and furnished by tendon manufacturer.

**C.7 Removal of Excavation Support Systems**

The contractor shall remove all elements of excavation support systems extending between the ground surface and 6 feet below the existing or the proposed ground surface, whichever is lower. Repair any settlement or damage to the work or to adjacent property as a result of removing excavation support systems. Excavation support systems that cannot be safely removed or removed without causing settlement or damage to the work or adjacent property shall be left in place, at no additional cost to the department.

If backfill material is loosened to an extent that it settles more than one inch as a result of attempts to remove ground support members, the contractor shall be responsible for remedial measures to re-compact or consolidate the loosened backfill. The contractor's engineer shall be responsible for determining if ground support system can be safely removed. Excavation support system elements that are left in place shall be at the contractor's expense. Restoration of any damage and the cost of remediating disturbed backfill or adjacent property damage caused by removal of ground support systems shall be at the contractor's expense.

**C.8 Shaft Backfilling**

Backfill shafts in accordance to standard spec 206.3.13. Backfill around the pipe inside the shaft shall be in accordance to standard specs 209.2, 520.3.2 and 520.3.4.

**D Measurement**

The department will measure Shaft Excavation Support System by the square foot, acceptably completed. Additional excavation beyond the limits of the plan dimensions will not be measured for payment unless authorized and agreed to in advance of placement by the department.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0165.8095 | Shaft Excavation Support System | SF |

Payment for Shaft Excavation Support System is full compensation for furnishing, installing, and removing excavation support systems for working shafts at Z2431 and Z2623, maintaining, replacing or installing existing/new excavation support elements at previously excavated and temporarily backfilled shaft Z2683, including but not limited to: excavation; all elements of excavation support systems; removing encountered boulders and known or unknown abandoned man-made objects (regardless of quantities); ground improvements; ancillary work for tunnel portals; providing and placing backfill; shaft base material compaction and work slab; removal of excavation support systems; disposing of surplus material; and for equipment mobilization/demobilization.

## 394. Joint Sealing, Item SPV.0180.0101.

**A General**

This special provision describes the minimum requirements for preparing the pavement joint or crack, and furnishing and installing the sealant. Seal all expansion, hand-formed, and sawed joints in the pavement. Also, seal all bond or construction joints.

**B Materials**

Joint sealer shall comply with the requirements of ASTM Designation D3405. Joint sealer shall be composed of a mixture of materials that will form a resilient and adhesive compound capable of effectively sealing joints in concrete against the infiltration of moisture and foreign material throughout repeated cycles of expansion and contraction with temperature changes, and of a mixture that will not flow from the joints or be picked up by vehicle tires at summer temperatures. The material must be capable of being brought to a uniform pouring consistency suitable for completely filling the joints without inclusion of large air holes or discontinuities.

The joint sealer shall be elastic type but poured; melt by using indirect heat in suitable equipment provided with positive temperature control and mechanical agitation. Do not damage the material when heating it to the temperature required for satisfactory pouring.

When applying the joint sealer, the atmospheric and concrete temperature will be above 40°F.

**C Construction**

**C.1 Preparation of Pavement Joint or Crack**

Clean the pavement joint or crack of all foreign material prior to the installation of the joint sealer. Completely remove the slurry resulting from the sawing operations from the joint by blowing it clean with compressed air (minimum air pressure – 80 pounds per square inch). Joints shall be dry prior to applying joint sealer.

**D Measurement**
The department will measure Joint Sealing by the area of square yards of pavement sealed, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0180.0101 | Joint Sealing | SY |

Payment is full compensation for the cost of and placement of the sealant; for cleaning the joint or crack; for removing slurry and blowing the joint clean.

## 395. Concrete Pavement Repair Special, Item SPV.0180.0102.

**A Description**
This special provision describes removing existing shoulder pavement by saw cutting, excavating, grading, adjusting existing storm sewer covers, compacting, and replacing shoulder pavement with special high early strength (SHES) concrete and finishing necessary to accommodate Concrete Pavement Repair Special as shown on the plans and conforming to standard spec 416 as modified in this special provision.

Adjusting existing storm sewer covers consists of; excavating unsuitable material; filling voids with backfill material, compacting, removing, handling, storing and resetting existing storm sewer structure covers.

**B (Vacant)**

**C Construction**
Backfill all subgrade voids beneath the repair area using compacted Base Aggregate Dense. Obtain approval of the engineer before using Backfill Controlled Low Strength to backfill voids that cannot be compacted with standard equipment.

Adjust and reset all drainage covers within the repair area prior to the placement of the concrete pavement.

**D Measurement**
The department will measure Concrete Pavement Repair Special by the square yard, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0180.0102 | Concrete Pavement Repair Special | SY |

Payment for the Concrete Pavement Repair Special item is full compensation for furnishing, hauling, preparing, placing, curing, and protecting all materials; for sawing existing pavement for removal; for removing and disposing of existing pavements and excavated materials; for sawing joints; for preparing the foundation; for tie bars and dowel bars provided and placed in the repair area; for removing, handling, storing, adjusting, and reinstalling storm sewer covers; and for testing concrete cylinders. Replace all covers that are damaged by the contractor's operations at no expense to the department. The department will pay for individual repairs the width of the existing concrete lane or shoulder and less than 300 feet long as Concrete Pavement Repair Special.

The department will pay for backfilling with Base Aggregate Dense and Backfill Controlled Low Strength separately under the respective bid items.
SEF Rev. 14_1015

## 396. Concrete Pavement 12-Inch Special, Item SPV.0180.0105.

**A Description**
This special provision describes specialized material and construction requirements to utilize on the Zoo Interchange mainline pavement and shoulders.

Conform to standard specs 415 and 501 as modified in this special provision, and in accordance to special provision QMP Concrete Pavement Special Requirements.

Concrete pavement mixes from standard spec 501 may not be used. Provide an independent contractor developed mix design.

**B Materials**
**B.1 Concrete**
*Add the following to standard spec 415.2.1:*

Furnish a cementitious material that does not contain more than 30% slag. Ensure that the combination of fly ash and slag does not exceed 30% of the total cementitious material.

**B.2 Reinforcement**
*Replace standard spec 415.2.2 with the following:*

Furnish steel reinforcement conforming to standard spec 505. Furnish tie bars as the plans show and according to standard spec 505.2.6.

Furnish dowel bars conforming to standard spec 505.2.6 except, for transverse joints in mainline concrete pavement, use non-corrosive high performance dowel bars. Use only one type of high performance bar for work under the contact. The following may be used:

1. Bars with 316L stainless steel cladding meeting ASTM A276 chemical requirements. Ensure that the bars have a smooth finished surface cladding 0.060 inches thick or thicker over ASTM A615 grade 60 or higher carbon steel.

2. Bars with 316L stainless steel tubes meeting ASTM A276 chemical requirements. Ensure that the tubes have a smooth finished surface, a wall thickness of 0.060 inches or more, and are press-filled with ASTM A615 grade 60 or higher carbon steel. Use an adhesive or epoxy between the tube and the carbon steel to fill any voids.

3. Solid 316L stainless steel bars conforming to ASTM A955 grade 60 or higher.

4. Bars with a rolled UNS Z41121 zinc alloy cladding conforming to ASTM B6. Ensure that the bars have a smooth finished surface cladding 0.040 inches thick or thicker over ASTM A615 grade 60 or higher carbon steel.

5. Bars with a fully bonded longitudinal glass fiber reinforced polymer (GFRP) corrosion shield conforming to the GFRP materials requirements of AASHTO LRFD Bridge Design Guide Specifications for GFRP Reinforced Concrete Bridge Decks and Traffic Railings. Ensure that the bars have a smooth finished GFRP surface coating 0.125 inches thick or thicker over ASTM A615 grade 60 or higher carbon steel.

6. Use bars with a minimum outside diameter of 1.5-inches and a length of 18-inches for all non-corrosive high performance dowel bars.

**B.3 Concrete Curing Compounds**
*Replace standard spec 415.2.4 with the following:*

Furnish poly-alpha-methylstyrene membrane curing compound conforming to ASTM C 309 as modified below.

| | |
|---|---|
| Total Solids (% by weight of compound) | 42 Minimum |
| % Reflectance in 72 hours (ASTM E1347) | 65 Minimum |
| Loss of Water, kg/m2 in 24 hours (ASTM C156) | 0.15 Maximum |
| Loss of Water, kg/m2 in 72 hours (ASTM C156) | 0.40 Maximum |
| VOC content (g/L) | 350 Maximum |
| Infrared Spectrum, Vehicle | 100% alpha methylstyrene |

**B.4 Coarse Aggregates**
**B.4.1 General**
*Replace standard spec 501.2.5.4.1 with the following:*

Use clean, hard, durable crushed limestone with 100% fractured surfaces and free of an excess of thin or elongated pieces, frozen lumps, vegetation, deleterious substances or adherent coatings considered injurious.

Use virgin aggregates only.

**B.5 Deleterious Substances**

*Replace standard spec 501.2.5.4.2(1) with the following:*

The amount of deleterious substances shall not exceed the following percentages:

| DELETERIOUS SUBSTANCE | PERCENT BY WEIGHT |
|---|---|
| Shale | 1.0 |
| Coal | 1.0 |
| Clay lumps | 0.3 |
| Soft fragments | 3.0 |
| Any combination of above | 3.0 |
| Thin or elongated pieces based on a 3:1 ratio | 15.0 |
| Materials passing the No. 200 (75 µm) sieve | 1.5 |
| Chert[1] | 3.0 |

[1] Material classified lithologically as chert and having a bulk specific gravity (saturated surface-dry basis) of less than 2.45. Determine the percentage of chert by dividing the weight of chert in the sample retained on a 3/8-inch (9.5 mm) sieve by the weight of the total sample.

**B.6 Physical Properties**

*Replace standard specs 501.2.5.4.3 (1) and (2) with the following:*

The percent wear shall not exceed 30%.

The department will ensure that soundness testing conforms to AASHTO T 104, using five cycles in sodium sulfate solution on aggregate retained on the No. 4 (4.75 mm) sieve. The weighted loss shall not exceed 6 percent.

The department will ensure that freeze-thaw soundness testing confirms to AASHTO T 103. The weighted freeze-thaw average loss shall not exceed 15 percent.

**B.7 QMP Testing Requirement Modification**

**B.7.1 Concrete Pavement Mixes**

Testing referred to in this section pertains to concrete mix design approval and trial batch proving.

In addition to B.5.2.3.2 paragraph one of the QMP Concrete Pavement Special Requirements provision of this contract, use at least five pairs of beams and five pairs of cylinders to demonstrate the flexural strength of a mix design. Demonstrate that the 28-day flexural strength of the proposed mix will equal or exceed 650 psi. Ensure that the average flexural strength of any one pair of beams is not less than 490 psi.

**B.7.2 Contractor Testing**

**B.7.2.1 General**

Perform all quality control tests applicable to this special provision and as described in the quality control plan. Use the test methods identified below to perform the required tests:

Flexural strength……AASHTO T 97

The department may periodically observe contractor sampling and testing, and direct additional contractor sampling and testing for department evaluation. Ensure that all test results are available for the engineer's review at any time during normal working hours.

**B.7.3 Flexural Strength**

**B.7.3.1 Sampling**

Cast specimens for testing flexural strength in each lot tested under the QMP Concrete Pavement Special Requirements provision of this contract. Cast compressive strength and flexural strength test specimens from the same concrete mix sample.

Sample according to AASHTO T 141. Cast and cure the specimens according to AASHTO T 23.

Cast one set of three standard 6 x 6 inch beams to test the lot flexural strength.

**B.7.3.2 Testing**

Have a technician certified for flexural strength through the department's HTCP, in a department-qualified laboratory, perform flexural strength testing and document the results.

Determine the 28-day strength in psi of each specimen according to the specified AASHTO standards for each required test. Test each specimen to failure. Use a machine that automatically records the date, time, rate of loading, and maximum load of each specimen. Include a printout of this information with the strength documentation for each specimen tested.

**C Construction**

**C.1 Jointing**

**C.1.1 General**

*Add the following to standard spec 415.3.7.1:*

Treat sawed surfaces of transverse and longitudinal joints with a silane joint sealant found on the departments approved products list for Concrete Protective Surface Treatments. Prepare surface by pressure washing all saw slurry from sawed joints and allow to dry thoroughly prior to application of silane sealer. Apply the product directly to the interior of the sawed joint. Do not use the broadcast spray method of application.

**C.2 Surface Finishing**
*Replace standard spec 415.3.8.3.1 with the following:*

Tine freshly placed pavement as soon as it is practical after floating.

Tine with a self-propelled tining machine. Where using a tining machine is not practical, tine by hand. Produce uniformly deep grooves approximately 1/8 to 3/16 inch (3 mm to 5 mm) deep. Provide a finished surface free of tining defects. Complete before tining tears or unduly roughens the concrete.

Tine surface longitudinally as specified in standard spec 415.3.8.3.2.

**C.3 Curing Concrete**
**C.3.1 General**
*Replace standard spec 415.3.12.1 with the following:*
Maintain adequate moisture throughout the concrete mass to support hydration until the concrete develops sufficient strength to open it to service. Cure all concrete by impervious coating as specified in standard spec 415.3.12.2 within 75 minutes from the time concrete is discharged from the truck.

If the concrete is not cured as specified in the subsection, the engineer may suspend concrete placement operations.

**C.4 Extended Delivery Time**
*Delete paragraph one from standard spec 501.3.2.4.3.3.*

**C.5 Ready-Mixed Concrete**
**C.5.1 General**
*Replace standard spec 501.3.5.1 with the following:*

Use central-mixed concrete for all work under this special provision. Central-mixed concrete is completely mixed in a stationary mixer and transported to the point of delivery with or without mechanical agitation in the transporting vehicle.

**C.6 Hot Weather Concreting**
**C.6.1 General**
*Replace standard spec 501.3.8.2.1 with the following:*

Take the following steps to ensure that the concrete will cure during hot weather conditions. Submit a written temperature control plan at or before the pre-pour meeting. In that plan, outline the actions to control concrete temperature if the concrete temperature at the point of placement exceeds 80° F (27° C). Do not place concrete without the engineer's written acceptance of that temperature control plan. Perform the work as outlined in the temperature control plan.

If the air temperature exceeds 80° F (27° C) ensure that the asphalt base is in a moist condition during concrete placement. Water the asphalt base, as required, not less than six hours before placing the concrete. If the asphalt base subsequently dries, moisten it by sprinkling water just before placing the concrete. Sprinkle the water to avoid forming pools.

If the concrete temperature at the point of placement exceeds 90° F (32° C), do not place concrete for items covered in this special provision.

Notify the engineer whenever conditions exist that might cause the temperature at the point of placement to exceed 80° F (27° C). If project information is not available, obtain information from similar mixes placed for other nearby work.

Any additive or action taken to control the temperature of concrete to within the limits of this special provision, including but not limited to the addition of ice to the concrete mix, is considered incidental to the work and will not be measured or paid for separately.

**D Measurement**

The department will not measure Concrete Pavement 12-Inch Special. The department will use pay plan quantity according to the Pay Plan Quantity article.

**E Payment**

Conform to standard spec 415.5 and as modified in this special provision.

*Replace paragraph one of standard spec 415.5.1 with the following:*

The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0180.0105 | Concrete Pavement 12-Inch Special | SY |

**E.1 Pay Adjustment for Compressive Strength**

The department will adjust pay for each lot using percent within limits (PWL) of the 28-day sublot average strengths for that lot. The department will measure PWL relative to the lower specification limit of 4500 psi.

SEF Rev. 14_1211

## 397. Asphaltic Material Binder, Item SPV.0180.0106.

**A Description**

This special provision describes furnishing and applying an asphaltic material binder to aggregate, at locations shown in the plans, to control erosion and prevent the growth of vegetation.

**B Materials**

**B.1 General**

Furnish emulsified asphalt, type RS 1 or RS 2 conforming to AASHTO M140, or type CRS 1 or CRS 2 conforming to AASHTO M208 for the asphaltic material.

Furnish evidence, to the satisfaction of the engineer, that the proposed product has been successfully used in a similar application.

**C Construction**

**C.1 Application**

Apply the Asphaltic Material binder uniformly over the dry surface at a rate just sufficient to ensure penetration and binding of the particles in the upper 2 inches of the aggregate blanket in accordance to the manufacturer's recommended rate and procedures. Avoid excessive application of asphaltic material binder and exercise care to prevent material run-off. Protect the surface of adjacent structures, barriers, and pavement to prevent splattering or discoloration by asphaltic material.

Protect asphaltic material binder from excessive dust exposure for the first 4 hours of curing.

**C.2 Test Section**

Prepare a test section utilizing aggregate and asphaltic material binder so the engineer will be able to assess the adequacy of the product and the application to yield the desired results. Test section to be a minimum of 3-feet x 3-feet. Notify the engineer no less than 24 hours in advance of preparing the test section to allow him time to arrange for witnessing the asphaltic material binder application and mixing with the aggregate. Cure test section according to product manufacturer's requirements before the engineer will accept the product for use.

If the test section is not accepted, prepare another test section and repeat the process. Repeat this procedure until the engineer accepts the test section. Use the same asphaltic material binder means and methods when installing the product that were used in preparing the accepted test section.

**D Measurement**

The department will measure Asphaltic Material Binder by the square yard in place, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0180.0106 | Asphaltic Material Binder | SY |

Payment is full compensation for furnishing, mixing and applying the asphaltic material binder to the aggregate; for cleaning any splatter of asphaltic material binder from adjacent structures, barriers, and pavement; and for making and disposing of test sections.
SEF Rev. 14_1210

## 398. Topsoil Special, Item SPV.0180.0200.

### A Description

This special provision section describes furnishing, placing, spreading, and finishing humus-bearing soil, adapted to sustain plant life, commonly known as topsoil, from locations the contractor furnishes beyond the limits of the right-of-way.

This special provision also describes removing topsoil from the sites of proposed roadway excavations and embankments in amounts and depths available and necessary to cover the work slopes. This work also includes reclamation, placing, spreading, and finishing of this topsoil.

### B Materials

Furnish material that is relatively free from large roots, sticks, weeds, brush, stones, litter, and waste products.

Furnish material, either obtained offsite, or material obtained within project limits, consisting of loam, sandy loam, silt loam, silty clay loam, or clay loam humus-bearing soils adapted to sustain plant life. Do not use surface soils from ditch bottoms, drained ponds, and eroded areas, or soils which are supporting growth of NR 40 listed plants and noxious weeds or other undesirable vegetation. Ensure that the material conforms to the following:

| Topsoil Requirements | Minimum Range | Maximum Range |
|---|---|---|
| Material Passing 2.00 mm (#10) Sieve* | 90% | 100% |
| PH Range | 6.0 | 7.0 |
| Organic Matter** | 5% | 20% |
| Clay | 5% | 30% |
| Silt | 10% | 70% |
| Sand and Gravel | 10% | 70% |

*See standard spec 625.3.3 for sieve requirements when using either sod or seed mixture 40.
**Organic matter determined by loss on ignition test of samples oven dried to constant weight at 212 F (100C).

## C Construction

### C.1 Preparing the Roadway for Topsoil

Undercut or underfill all areas designated to receive topsoil to a degree that if covered to the required depth with topsoil the finished work conforms to the required lines, grades, slopes and cross sections the plans and drawings show.

### C.2 Processing Topsoil

Mow topsoil procurement areas to a height of approximately 6 inches. Remove litter such as brush, rock, and other materials that will interfere with subsequent vegetation establishment.

Strip off the humus-bearing soil. Take care to minimize removing the underlying sterile soil. Then stockpile the topsoil on the right-of-way or place it directly on the designated areas.

Obtain topsoil from embankment areas outside the roadway foundation only if that additional material is required to cover the slopes, and conforms to the requirements of section B above. Utilize excess topsoil on the project or dispose of as specified in standard spec 205.3.12.

### C.3 Placing Topsoil

After preparing and finishing the areas designated for topsoil to the required lines, grades, slopes and cross section, place and spread the topsoil to a uniform depth as the plans show or the contract requires. If no depth is shown, place and spread the topsoil to a minimum depth of 4 inches in rural areas and a minimum depth of 6 inches in urban areas, or as the engineer designates.

Break down all clods and lumps using appropriate equipment to provide a uniformly textured soil.

Where using either sod or seed mixture 40 ensure that, for the upper 2 inches, 100 percent of the material passes a one-inch sieve and at least 90 percent passes the No. 10 sieve.

Remove rocks, twigs, foreign material, and clods that cannot be broken down. Dress the entire surface to present a uniform appearance. The engineer will not require rolling.

If light sandy soils are covered with heavier clay bearing loam topsoil, then mix or blend the 2 types of soils to a more or less homogeneous mixture by using the appropriate equipment.

**D Measurement**

The department will measure Topsoil Special acceptably completed by the square yard. The measured quantity shall equal the actual number of square yards of topsoiled area to the depth specified within the limits of construction designated on the plans, or in the contract, or as the engineer directs.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0180.0200 | Topsoil Special | SY |

Payment for Topsoil is full compensation for removing, stockpiling, reclaiming, providing, processing, excavating, loading, hauling, and placing this material; and for undercutting excavations, or underfilling embankments necessary to receive this material. The department will make no allowance, adjustment, or measurement for payment under the Excavation bid items for undercutting cut sections, underfilling embankments, or deductions for materials obtained from areas of cut sections.

If an area is damaged by erosion after partial acceptance, the department will pay for restoring topsoil in these areas at a unit price determined by multiplying the contract unit price bid for Topsoil multiplied by 3, the department will pay for restoration under the Restoration Post Acceptance Topsoil administrative item.

The department will not pay for removing topsoil from outside the roadway foundation in embankment areas unless that material is necessary to cover the slopes.
SEF Rev.14_0922

## 399. Geogrid Reinforcement, Item SPV.0180.0800.

**A Description**

This special provision describes furnishing and installing geogrids for subgrade stabilization, base reinforcement, or pavement structure applications in accordance to the plans, standard spec 645, and as hereinafter provided.

**B Materials**

Provide geogrid that consists of either single or joined multiple layers of a uniform rectangular grid of bonded, formed, or fused polymer tensile strands crossing with a nominal right angle orientation. Utilize an insect, rodent, mildew, and rot resistant polymer grid consisting of polyester, polypropylene, polyamide, or polyethylene that maintains dimensional stability during handling, placing, and installation. Install geogrid at least 6.0 feet wide.

Provide geogrid that complies with the following physical properties:

| Test | Method | Value [1] |
|---|---|---|
| Tensile Strength at 5% Strain, Both Principal Directions (lb/ft) | ASTM D 4595 [2] | 450 min. |
| Flexural Rigidity Both Principal Directions (mg-cm) | ASTM D 1388 [3] | 150,000 min. |
| Aperture Area ($in^2$) | Inside Measurement [4] | 5.0 max |
| Aperture Dimension (in) | Inside Measurement [4] | 0.5 min. |

- [1] All numerical values represent minimum/maximum average roll values, i.e. the average minimum test results on any roll in a lot should meet or exceed the minimum specified value.

- [2] The tensile strength (T) of a joined multi-layered geogrid shall be computed using the following equation:

$$T = n(f)t$$

where

$n$ = the number of individual layers in the joined multi-layered geogrid,

$t$ = the tensile strength of a single layer of geogrid as determined using testing method ASTM D4595, and

$f$ = reduction factor based on the number of layers comprising the multi-layered system and determined by the equation f=1.00 - [0.04(n - 1)].

- [3] Values shall be determined by Option "A" (Cantilever Test) of testing method ASTM D1388 using test specimens that are 36 inches ±0.04 inch long. Test specimen widths for differing geogrids shall be variable and equal to one element plus ½ the aperture width on both sides of that element. An element is defined as the minimum number of parallel strands that form a distinguishable repeating pattern.

- [4] Aperture Area and Aperture Dimension for joined multi-layer geogrids shall be determined based on measurement of a single layer of the geogrid.

Protect the geogrid from ultraviolet radiation and from damage due to shipping and handling. Keep the geogrid dry until it is installed. The geogrid rolls shall be clearly marked to identify the material contained.

Deliver a sample of the geogrid material to the engineer at least 10 days prior to its incorporation into the work. At the same time, furnish a manufacturer's Certified Report of Test or Analysis that verifies that the geogrid delivered for use on the work meets the above requirements. Samples of geogrid for test purposes will be obtained from the job site for each 10,000 square yards or portions thereof used on the contract.

**C Construction**

Prior to placement of the geogrid, bring the indicated placement surface to the required lines, grades, and dimensions as shown on the plans. Smooth and shape the surface to eliminate any rocks, clods, roots, or other items that may cause damage to the geogrid during placement or covering.

Place the geogrid on the prepared surface at the locations and to the limits as shown on the plans. After placement, pull the geogrid taut and secure it using pins, clips, staples, or other devices to prevent movement or displacement. Place parallel strips of geogrid with a minimum overlap of 24 inches. Lap butt joints between roll ends a minimum of 12 inches. Fasten all lapped sections together by using ties, straps, clips, or other devices to develop a secure joint that meets the approval of the engineer. Do not operate vehicles or construction equipment directly on the geogrid.

Cover small rips, tears, or defects in the geogrid with an additional section of geogrid; secure the additional geogrid in place so it overlaps the damaged area by at least 3 feet in all directions. Remove and replace geogrid sections with large rips, tears, defects, or other damage at the direction of the engineer.

After placement, cover the geogrid to the indicated depth with the type of material required on the plans or in the special provisions. Placing, spreading, and compacting of this material shall comply with the applicable sections of the standard specifications or special provisions except that the initial lift of material placed on the geogrid must be at least 4 inches. Place, spread, and compact the required backfill material so the geogrid is not displaced or damaged. The engineer may require changes in equipment and operations to prevent such damage or displacement.

**D Measurement**

The department will measure Geogrid Reinforcement by the square yard of surface area upon which the geogrid has been placed acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0180.0800 | Geogrid Reinforcement | SY |

Payment is full compensation for furnishing, transporting, and installing the geogrid and for furnishing and installing all devices and materials necessary to join or secure the geogrid in place.

Repair or replacement of damaged or defective geogrid is considered incidental to item.
SEF Rev. 14_1203

## 400. Soil Drying, Item SPV.0180.0801; Soil Drying Agent, Item SPV.0195.0801.

### A Description

Use a soil drying agent only when directed by the engineer and weather conditions are not conducive to using discing, natural sunlight and wind to dry the soil to within an acceptable range of soil moisture content for efficient compaction per the QMP Subgrade special provision. The drying agent will be used principally in the late fall, winter and early spring when drying weather is not normally available. Soil should be dried per this specification when the moisture content is greater than the specified percent above the soil optimum moisture content and discing and air drying are not effective in reducing the soil moisture content. The contractor cannot use a soil drying agent until the engineer determines that soil moisture content, project schedule and weather require that the agent be used. Drying agents will only be used to facilitate soil compaction after the approval and authorization of the engineer.

The drying agent to be used for the project will be Fly Ash. Other drying agents such as hydrated lime, lime kiln dust and cement kiln dust are not allowed to be used as drying agents.

Drying agents will not be considered as part of a Cost Reduction Incentive (CRI) and will have to meet the general requirements of this special provision. The fly ash is used in absorption and chemical binding of moisture to facilitate compaction. The intent of this specification is to dry the soil and not to increase the strength of the soil-fly ash mixture.

Fly ash can be used to dry most soils but the expectation is that it will be used for predominantly cohesive (clay - CL) and silty (ML and SM) soil. Clean sand and gravel will not benefit by addition of fly ash and therefore should not be dried using fly ash. The fly ash must be thoroughly mixed with the soil as fill lifts are placed to dry the soil and meet the compaction requirements.

### B Materials

Fly ash is a finely divided residue resulting from combustion of coal in an electric generating plant, transported from the boiler by flue gases and later collected by precipitators. The soil drying agent must consist of Class C fly ash according to ASTM C618. The fly ash shall conform to the general requirements of standard spec 501.2

### C Construction

#### C.1 Submittals

##### C.1.1 General

Prepare and submit soil drying agent mix and work plan at least 10 calendar days prior to beginning drying agent activities. A minimum dosage of 40 pounds of fly ash per square

yard to an 8-inch depth/lift by the dry weight of the soil must be used. WisDOT will accept the submittal as submitted or return the submittal with requested revisions. Do not start any drying agent work until WisDOT provides acceptance of soil drying agent mix and work plan. Acceptance of the submittals does not relieve the contractor of responsibility for successful completion of the earthwork.

### C.1.2 Submittals for Approval

**Soil Drying Agent Mix:**

a. Submit mix designs for the drying agent proposed for use. A mix design is required for each soil type and dosage rate. Resubmit as appropriate if the mixes are modified during the course of the work including fly ash source changes. The mix design must indicate the optimum amount of fly ash needed as a percentage of the soil dry weight for the soil to be dried. Each mix design shall show the ingredients of the mix and shall include:
    i. Type, source, and amounts of fly ash, and other additives.
    ii. Material Safety Data Sheet (MSDS) for the fly ash (provide once per fly ash source).
    iii. Source and amount of additional water, as needed.
    iv. Representative samples of soil and ash materials for materials test and mix proportion testing (provide once per soil type and fly ash source).
    v. Combined grading of each mix design.
    vi. Specific gravity of all materials.
    vii. Atterberg Limits tests (ASTM D-4318) for the soil and soil fly ash mixture.
    viii. Standard Proctor tests (ASTM D-698) on the soil and soil fly ash mixture.
    ix. Tests showing soil moisture loss with the proposed dosage rate.
    x. Results of required tests.
b. Submit certificates of compliance for each load of fly ash which is in accordance to ASTM C618 and certificates of compliance for all admixtures. Supporting test data shall be furnished when requested by WisDOT. All testing and sampling procedures shall be in accordance to ASTM C311.

**Soil Drying Agent Work Plan:** The work plan for placing the soil drying agent shall include:

a. Drying agent placement methods, mixing procedures and sequences for soil drying.
b. Method of transporting and distributing fly ash into the soil including rotary mixer equipment and materials.
c. Means for measuring fly ash per fill area. Use of truck tickets that specify net weight of fly ash in a truck is acceptable.
d. Embankments to be treated, natural moisture contents of the cut to fill soils, and proposed dosage rates.

Submit a revised work plan reflecting any changes made during the course of the work. Do not continue with Soil Drying Agent work until the revised work plan is approved by the engineer.

### C.1.3 Information Submittals

**Soil Drying Agent Daily Records:** Submit the following daily reports and records for soil drying agent.

a. Daily logs of drying agent placement operations at all locations (station and position) of embankment fill placement, including fly ash volumes, mix details and weather conditions.
b. Additional lab testing as identified in section C.1.2.a is expected to be required if the soil to be dried changes engineering characteristics. Supplemental test reports from a certified testing laboratory are required when the fill soil changes.

### C.1.4 Acceptance

The department will evaluate the Submittals for Approval with the requirements of these special provisions. Within 5 calendar days after receipt of the Submittals of Approval, WisDOT will notify the contractor of the acceptance of the submittal, or if additional information and/or changes are required. Any unacceptable part of the Submittals of Approval will require resubmission. The contractor must resubmit the Submittals of Approval for evaluation and review with the necessary changes or additional information provided. WisDOT will provide a written notice of acceptance or rejection of contractor's resubmitted Submittal for Approval within 5 calendar days after its receipt.

After WisDOT's acceptance of Submittal of Approval, no changes to the Submittal of Approval can be made without written consent of WisDOT.

All Information Submittals should be submitted to WisDOT. WisDOT can reject the submittals which do not provide adequate detail, as required herein. The contractor shall resubmit the rejected submittals within seven days upon the receipt of WisDOT's rejection notice.

### C.2 General Soil Drying Requirement

Notify WisDOT at least 24 hours in advance of the start of soil drying operations. Soil drying cannot be used on frozen soil or with frozen fly ash. Compaction must be started no later than 1 to 2 hours after the fly ash is mixed with the soil.

Soil drying agent must be thoroughly mixed into each lift of wet soil using a rotary mixer to be sure that the fly ash is uniformly distributed and uniformly dries the soil to acceptable moisture content for compaction.

Soil drying can be performed in colder weather as long as the soil and fly ash are not frozen. If fill placement must occur during freezing conditions, soil drying can be used but any soil/fly ash mixture that freezes must be removed including materials that freeze overnight. The removal must extend to an unfrozen subgrade and the frozen material must be replaced with non-frozen soil or soil/fly ash.

**C.3 Cleanup**
Care must be exercised by the contractor to prevent fugitive dust containing fly ash while mixing and placing the ash. Minimize spilling and do not allow blowing of fly ash on areas that do not need to be dried. Remove or mix any spilled ash with soil to prevent ash from becoming air born. Properly dispose or all waste materials.

**D Measurement**
The department will measure Soil Drying in area by the square yard per lift of the soil, effectively dried and acceptably completed.

The department will measure Soil Drying Agent per ton, acceptably completed, using truck weigh tickets.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0180.0801 | Soil Drying | SY |
| SPV.0195.0801 | Soil Drying Agent | Ton |

Payment for Soil Drying is full compensation for preparing submittals, soil testing, maintaining daily records, and mixing drying agent with wet soil for compaction, including all necessary equipment, water and disposal of surplus materials. Compaction of fill is paid for under other specifications and not included herein.

Payment for Soil Drying Agent is full compensation for providing, hauling and spreading the drying agent.

No additional payment will be provided for Soil Drying when used in previously placed embankment areas that have been removed as a result of frost or poor drainage.

## 401. Slope Paving Crushed Aggregate Special, Item SPV.0180.4800.

**A Description**
This special provision describes furnishing, crushing and placing aggregate for slope paving and applying an epoxy resin binder with the aggregate, as shown in the plans, in accordance to the applicable provisions of standard spec 604, and as hereinafter provided.

**B Materials**
**B.1 General**
Utilize a low modulus, medium-viscosity, two-component epoxy resin binder.

Furnish evidence, to the satisfaction of the engineer, that the proposed product has been successfully used in a similar application.

Epoxy resin binder shall be clear to light amber when fully cured.

Utilize Wisconsin crushed aggregate limestone with 100% fractured faces and hues of tan, amber and gray conforming to the following nominal requirements:

| Sieve Size | Percent by Weight Passing |
|---|---|
| 4-Inch | 100 |
| 1-Inch | 0-25 |

**B.2 Minimum Requirements.**
Furnish epoxy resin binder material conforming to ASTM C-881 and AASHTO M-235 specifications and the following requirements:

- Total water absorption, ASTM D-570
  7 day, 1.3% (2 hour boil)
  14 day, 0.232% (24 hour immersion)
  Viscosity: 2,500 cps

**C. Construction**
**C.1 Application**
Apply the epoxy resin binder material uniformly over the surface of the paving at a rate just sufficient to ensure penetration and binding of the particles in the upper 2 inches of the aggregate blanket in accordance to the manufacturer's recommended rate and procedures. Utilize a two part sprayer with mixing completed at the nozzle to apply the binder. Avoid excessive application of epoxy resin binder and exercise care to prevent material run-off. Protect the surface of adjacent structures, barriers, and pavement to prevent splattering or discoloration by epoxy resin binder and immediately remove all material accumulations at the foot of the slope paving

Apply and mix epoxy resin binder under dry conditions only. Do not apply if rain is expected within 8 hours following epoxy resin application to crushed aggregate or as recommended by the manufacturer and approved by the engineer.

Ensure ambient air and surface temperature is between 50 and 90° F during, and for 24 hours following, application and mixing of the epoxy resin binder or as recommended by the manufacturer and approved by the engineer.

Protect installed crushed aggregate with epoxy resin binder from excessive dust exposure for the first 4 hours of curing.

**C.2 Test Section**
Prior to placing slope paving, prepare a test section utilizing the proposed aggregate and epoxy resin binder so the engineer will be able to assess the adequacy of the product and the application and mixing methods to yield the desired results. Test section to be 3-feet x 3-feet and a minimum of 4-inches thick. Notify the engineer no less than 24 hours in advance of preparing the test section to allow him time to arrange for witnessing the epoxy resin binder application and mixing with the aggregate. Cure test section according to

product manufacturer's requirements before the engineer will accept the product for use on the final structures.

If the test section is not accepted, prepare another test section and repeat the process, using either a different aggregate or epoxy resin binder. Repeat this procedure until the engineer accepts the test section. Use the same aggregate and epoxy resin binder means and methods when installing the product under each structure that were used in preparing the accepted test section.

**D Measurement**

The department will measure Slope Paving Crushed Aggregate Special by the square yard in place, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.180.4800 | Slope Paving Crushed Aggregate Special | SY |

Payment is full compensation for furnishing, crushing and placing crushed aggregate; for furnishing, mixing and applying the epoxy resin binder to the aggregate; for preparing the subsurface; for cleaning any splatter of epoxy resin binder to adjacent structures, barriers, and pavement; and for making and disposing of the test section.
SEF Rev. 14_1211

## 402. Cold Patch, Item SPV.0195.0100.

**A Description**

This special provision describes furnishing, stockpiling, placing, and maintaining cold patch material. Use the cold patch material for short term maintenance purposes to fill potholes/voids in the existing pavement surface that the engineer deems necessary.

**B Materials**

**B.1 General**

Furnish cold patch that is a combination of course aggregate, natural sand and bituminous material MC-250. Design the mixture to have: a workability range of 15-100º F without the addition of heat, good adhesion to wet surfaces, and resistance to damage by water, salt and deicing products. Design a uniform mixture that does not require any mixing or special handling prior to use.

**B.2 Gradations**
Conform to the following gradation requirements:

| SIEVE SIZE | PERCENT PASSING (by weight) |
|---|---|
| 1/2 Inch (12.5mm) | |
| 3/8 Inch (9.5mm) | 90 - 100 |
| No. 4 (4.75 mm) | 90 Max |
| No. 8 (2.38mm) | 20 - 65 |
| No. 200 (.074mm) | 2 - 10 |
| Bitumen | 4.8 - 5.4 |

**B.3 Contracts With Less Than 10 Tons of Mixture**
The engineer may waive QC testing on contracts with less than 10 tons of mixture. If testing is waived, acceptance will be by visual inspection unless defined otherwise by contract change order.

**B.4 Temporary Pavements**
The engineer may waive all testing for temporary cold patch, defined for this purpose as cold patch that will be placed and removed before contract completion.

**C Construction**
**C.1 General**
Choose a smooth, firm, and well-drained area for an on-site stockpile that is cleared of vegetation and foreign material that may contaminate the cold patch. Make the stockpile easily accessible, maintainable and replenishable at any time during the project. The stockpile is not to exceed 10 tons on site at any given time unless approved by the engineer. Remove and dispose of any unused portions of the stockpile at the completion of the project unless otherwise directed by the engineer.

Application of the cold patch must be able to be accomplished by hand labor. Remove all ponded water and loose debris prior to filling any potholes/voids. Place material into the pothole/void and compact flush with a tamper, roller, or vehicle tire. Traffic must be able to travel over the patch immediately after installation.

**D Measurement**
The department will measure Cold Patch by the ton stockpiled on site, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0195.0100 | Cold Patch | Ton |

Payment for cold patch is full compensation for the patch; preparing the pothole/void for material furnishing and providing a stockpile of material, compacting, and maintaining.

Remove and dispose of any unused portions of the stockpile at the completion of the project at no additional cost.
SEF Rev. 14_1211

## 403. HMA Longitudinal Joint Repair, Item SPV.0195.0120.

### A Description
This special provision describes the milling, brooming, placing of HMA, and maintenance of the HMA Longitudinal Joint Repair item in accordance to the pertinent requirements of the standard specifications, and as hereinafter provided.

### B Materials
*Delete standard spec 460.2.8.*

Submit a mix design under the Asphaltic Pavement Repair Special bid item. Furnish an asphaltic mixture meeting the requirements specified for either type E-10 under standard spec 460.2.

Provide asphaltic material PG 64-28 for this mix in accordance to standard spec 455.

Provide tack coat that is in accordance to standard spec 455.2.5.

### C Construction
#### C.1 General
Mill out an area no less than 2.0 feet wide to a depth down to the existing concrete pavement. The length of the repair will be determined by the engineer.

Clean the existing exposed concrete pavement surface with a power broom or other suitable equipment to remove millings or other objectionable matter prior to placing any HMA.

Conform to standard spec 315.3.1 for placement of the HMA pavement.

#### C.2 Maintenance
Maintain work done under the HMA Longitudinal Joint Repair item for the duration of the contract. This includes remilling and replacement of additional HMA pavement if required as determined by the engineer.

### D Measurement
The department will measure HMA Longitudinal Joint Repair by the ton acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0195.0120 | HMA Longitudinal Joint Repair | Ton |

Payment for the HMA Longitudinal Joint Repair item is full compensation for milling the existing asphaltic surface, hauling and disposing of existing pavements, brooming the milled area prior to placing the HMA pavement, placing tack coat, providing and placing the asphaltic pavement mixture (including asphaltic material), and for maintaining the HMA Longitudinal Joint Repair.

SEF Rev. 15_0309

## 404. Management of Solid Waste, Item SPV.0195.0700.

**A General**

**A.1 Description**

This work will conform with the requirements of standard spec 205; to pertinent parts of the Wisconsin Administrative Code, Chapters NR 700-736 Environmental Investigation and Remediation of Environmental Contamination; Wisconsin Administration Code, Chapters NR 500-538, Solid Waste; and as shown on the plans and as supplemented herein.

Historic fill containing solid waste will be encountered within the construction limits. The solid waste contains NR 500 non-exempt industrial wastes including soil mixed with foundry sand and slag. Impacted waste material excavated during construction which cannot in the opinion of the environmental consultant be managed as petroleum-contaminated soil, common excavation or reused on-site will be managed as solid waste.

This work consists of excavating, segregating, temporary stockpiling, loading, hauling, and disposing of solid waste material at a WDNR-approved disposal facility. The nearest WDNR-approved disposal facilities are:

Advanced Disposal Emerald Park Landfill, LLC
W124 S10629 S 124th St
Muskego, WI 53150
Phone: (414) 529-1360

Waste Management Orchard Ridge Landfill
N96W13503 County Line Road
Menomonee Falls, WI 53051
Phone: (262) 253-8620

Provide information to the environmental consultant and engineer that indicates the WDNR-approved disposal facility that the contractor will use.

## A.2 Notice to the Contractor – Solid Waste Locations

The department and others completed hazardous materials assessment for locations within this project where excavation is required. Investigation for soil contamination was conducted at select locations. Results indicate that solid waste is present at the following location as shown on the plans:

- SW Core Pond, 12PSW+82 to 14PSW+74, from 30 feet right to 210 feet right of PSW reference line, from 0 to 8.5 feet bgs. Soil is contaminated with foundry waste in a layer ranging in thickness from approximately 1 inch to 3 feet. **There is an area inside of this location with TCLP (toxicity characteristic leaching procedure) -hazardous waste cadmium that likely will require out of state disposal.** Approximately 1,810 cubic yards (approximately 3,077 tons at an estimated 1.7 tons per cubic yard) of soil containing foundry waste soil will be excavated from this area of which approximately 40 tons will be considered TCLP –hazardous waste cadmium and 3,037 tons will be considered non-hazardous.

Directly load solid waste excavated by the project at the above location into trucks that will transport the material to a WDNR-licensed landfill facility for landfill disposal.

If obviously contaminated soils or other signs of NR 500 non-exempt solid waste and hazardous materials are unexpectedly encountered elsewhere on the project, terminate excavation activities in the area and notify the engineer. Examples of these unexpected conditions may include, but are not limited to, buried containers or tanks, noxious odors and fumes, stained soils, sheen on ground water, other industrial wastes, and significant volumes of municipal or domestic garbage.

No active groundwater monitoring wells were observed within the construction limits. If active groundwater monitoring wells are encountered during construction, notify the engineer and protect them to maintain their integrity. The environmental consultant will determine if monitoring wells need to be maintained. For monitoring wells that do need to be maintained, adjust the wells that do not conflict with structures or curb and gutter to be flush with the final grade. For wells that conflict with the previously mentioned items or if monitoring wells are not required to be maintained, they will be abandoned by others.

## A.3 Excavation Management Plan Approval

The excavation management plan for this project has been designed to minimize the off-site disposal of contaminated waste. The excavation management plan, including these special provisions, has been developed in cooperation with the WDNR. The WDNR concurrence letter is on file at the Wisconsin Department of Transportation. For further information regarding previous investigation and remediation activities in these areas contact:

| | |
|---|---|
| Name: | Andrew Malsom |
| Address: | 141 NW Barstow Street, Waukesha, WI 53187-0798 |
| Phone: | (262) 548-6705 |
| Fax: | (262) 548-6891 |
| E-mail: | andrew.malsom@dot.state.wi.us |

## A.4 Coordination

Coordinate work under this contract with the environment consultant:

| | |
|---|---|
| Consultant: | TRC Environmental Corporation |
| Address: | 150 N. Patrick Blvd. Ste. 180, Brookfield, WI 53045 |
| Contact: | Bryan Bergmann, P.G. or Tyler Stapel, P.E. |
| Phone: | (262) 879-1212 |
| Fax: | (262) 879-1220 |
| E-mail: | bbergmann@trcsolutions.com wstapel@trcsolutions.com |

The role of the environmental consultant will be limited to:

1. Determining the location and limits of solid waste to be excavated based on soil analytical results from previous investigations, visual observations, and field screening of soil that is excavated;
2. Identifying soils to be hauled to the landfill facility;
3. Documenting that activities associated with management of solid waste are in conformance with the solid waste management methods for this project as specified herein; and
4. Obtaining the necessary approvals for disposal of solid waste from the landfill facility.

Provide at least a 14-calendar day notice of the preconstruction conference date to the environmental consultant. At the preconstruction conference, provide a schedule for all excavation activities in the area of solid waste fill described in A.2 to the environmental consultant. Identify the WDNR licensed landfill facility that will be used for disposal of solid waste, and provide this information to the environmental consultant no later than 15 calendar days prior to commencement of excavation in the impacted area or at the preconstruction conference, whichever comes first. The environmental consultant will be responsible for obtaining the necessary approvals from the landfill facility for disposal of the solid waste.

Coordinate with the environmental consultant to ensure that the environmental consultant is present during excavation in the impacted areas. Notify the environmental consultant at least three calendar days prior to commencement of excavation in the impacted areas. Perform excavation in the impacted areas on a continuous basis until excavation work is completed. Do not transport soil containing solid waste offsite without prior approval from the environmental consultant.

## A.5 Health and Safety Requirements

*Supplement standard spec 107.1 with the following:*

During excavation activities, expect to encounter historic fill contaminated with industrial wastes (foundry sand and slag) and associated regulated metals and organic compounds. Site workers taking part in activities that will result in the reasonable probability of exposure to safety and health hazards associated with hazardous materials shall have completed health and safety training that meets the Occupational Safety and Health

Administration (OSHA) requirements for Hazardous Waste Operations and Emergency Response (HAZWOPER), as provided in 29 CFR 1910.120.

Prepare a site-specific Health and Safety Plan, and develop, delineate and enforce the health and safety exclusion zones for each impacted area as required by 29 CFR 1910.120. Submit the site-specific health and safety plan and written documentation of up-to-date OSHA training to the engineer prior to the start of work.

**B (Vacant)**

**C Construction**

*Supplement standard spec 205.3 with the following:*

Control operations in the impacted areas to minimize the quantity of soil excavated.

The environmental consultant will periodically monitor soil excavated from the areas identified in A.2 above. The environmental consultant will evaluate excavated soil based on field screening results, visual observations, and soil analytical results from previous environmental investigations. Assist the environmental consultant in collecting soil samples for evaluation using excavation equipment. The sampling frequency shall be a maximum of one sample for every 20 cubic yards excavated.

Directly load and haul solid waste designated by the environmental consultant for offsite disposal to the WDNR approved landfill facility. Use loading and hauling practices that are appropriate to prevent any spills or releases of the material. Prior to transport, sufficiently dewater soils designated for off-site disposal so as not to contain free liquids.

Verify that the vehicles used to transport material are licensed for such activity in accordance to applicable state and federal regulations. Obtain the necessary disposal facility approvals and WDNR approvals for disposal. Do not transport regulated solid waste off-site without obtaining the approval of the environmental consultant and engineer and notifying the disposal facility.

During excavations in the areas of known contamination, larger chunks of clean concrete (~2 cubic feet), asphalt and bricks will be segregated from the fill, to the extent practical and managed as common excavation. Under NR 500.08 this material is exempt from licensing and requirements of Wisconsin Administrative Code NR 500-538 of the solid waste regulations, and will be reused as designated by the engineer as fill on the project, or it will be disposed of off-site at the contractor's disposal site(s).

If dewatering is required in an area of known contamination, water generated from dewatering activities may contain low-concentrations of petroleum compounds and metals. Based on the limited groundwater testing performed in the Phase 2.5 investigation, the water generated may meet the effluent limits specified in "Contaminated Groundwater from Remedial Action Operations" (WPDES Permit No. WI-0046566-5), Table 3.1 once standard construction sediment removal is employed. Notify the engineer of any dewatering activities, and obtain any permits necessary to discharge water. Provide copies

of such Permit to the engineer. Ensure continuous dewatering and excavation safety at all times. Provide, operate, and maintain adequate pumping equipment and drainage and disposal facilities. Meet any requirements and pay any costs for obtaining and complying with such permit use. Follow all applicable legislative statutes, judiciary decisions, and regulations of the State of Wisconsin.

Costs associated with excavation dewatering in the contaminated areas are considered incidental to this pay item. The Wisconsin Department of Transportation will be the generator of petroleum-contaminated soil and regulated solid waste from this construction project.

**D Measurement**

The department will measure Management of Solid Waste by the ton of soil or waste accepted by the disposal facility and as documented by weight tickets.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0195.0700 | Management of Solid Waste | Ton |

Payment is full compensation for excavating, segregating, loading, hauling, and landfill disposal of solid waste; obtaining solid waste collection and transportation service operating licenses; assisting in the collection of soil samples for field evaluation; and for dewatering of soils prior to transport, if necessary.

**ADDITIONAL SPECIAL PROVISION 1 (ASP 1)**
**FOR TRANSPORTATION ALLIANCE FOR NEW SOLUTIONS (TrANS)**
**PROGRAM EMPLOYMENT PLACEMENTS AND APPRENTICESHIPS**

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Section 5204(e) – Surface Transportation Workforce Development Training and Education, provides for 100 percent Federal funding if the core program funds are used for training, education, or workforce development purposes, including "pipeline" activities. The core programs includes: Congestion Mitigation and Air Quality Improvement (CMAQ) Program, Highway Bridge Program (HBP), Interstate Maintenance (IM), National Highway System (NHS), and Surface Transportation Program (STP). These workforce development activities cover surface transportation workers, including OJT/SS programs for women and minorities as authorized in 23 U.S.C. §140(b).

***TrANS*** is an employment program originally established in 1995 in Southeastern Wisconsin. Currently TrANS has expanded to include TrANS program locations to serve contractors in Southeast (Milwaukee and surrounding counties), Southcentral (Dane County and surrounding counties including Rock County), and most Northeastern Wisconsin counties from locations in Keshena, Rhinelander and surrounding far Northern areas. TrANS attempts to meet contractor's needs in other geographic locations as possible. It is an industry driven plan of services to address the outreach, preparation, placement and retention of women, minorities and non-minorities as laborers and apprentices in the highway skilled trades. These candidate preparation and contractor coordination services are provided by community based organizations. For a list of the TrANS Coordinators contact the Disadvantaged Business Enterprise Office at (414) 438-4583 in Milwaukee or (608) 266-6961 in Madison. These services are provided to you at no cost.

## *I. BASIC CONCEPTS*

Training reimbursements to employing contractors for new placements, rehires or promotions to apprentice of TrANS Program graduates will be made as follows:

1) **On-the-Job Training, Item ASP.1T0G, ASP 1 Graduate.** At the rate of $5.00 per hour on federal aid projects when TrANS graduates are initially hired, or seasonally rehired, as unskilled laborers or the equivalent.

   Eligibility and Duration: To the employing contractor, for up to 2000 hours from the point of initial hire as a TrANS program placement.

   Contract Goal: To maintain the intent of the Equal Employment Opportunity program, it is a goal that 15 *(number)* TrANS Graduate(s) be utilized on this contract.

2) **On-the-Job Training, Item ASP.1T0A, ASP 1 Apprentice.** At the rate of $5.00 per hour on federal aid projects at the point when an employee who came out of the TrANS Program is subsequently entered into an apprenticeship contract in an underutilized skilled trade (this will include the Skilled Laborer Apprenticeship when that standard is implemented).

Eligibility and Duration: To the employing contractor, for the length of time the TrANS graduate is in apprentice status.

Contract Goal: To maintain the intent of the Equal Employment Opportunity program, it is a goal that 15 *(number)* TrANS Apprentice(s) be utilized on this contract.

3) The maximum duration of reimbursement is two years as a TrANS graduate plus time in apprentice status.

4) If a TrANS program is not available in the contractor's area and another training program is utilized, payment of On-the-Job Training hours may be approved by the Wisconsin Department of Transportation (WisDOT) if the training program meets the established acceptance criteria. Only On-the-Job Training Hours accumulated after WisDOT approval will be reimbursed as specified under Items ASP.1T0G and ASP.1T0A. For more information, contact the Disadvantaged Business Enterprise Office at the phone numbers listed above.

5) WisDOT reserves the right to deny payments under items ASP.1T0G and ASP.1T0A if the contractor either fails to provide training or there is evidence of a lack of good faith in meeting the requirements of this training special provision.

## *I. RATIONALE AND SPECIAL NOTE*

The $5.00 per hour now being paid for TrANS placements is intended to cover the duration of two years to allow for reaching entry-level laborer status. An additional incentive, the $5.00 rate, would promote movement into the underutilized skilled trades' apprenticeships and applies until the individual completes their apprenticeship. These incentives benefit TrANS candidates by giving them a better opportunity to enter a skilled trade; benefits contractors who will be assisted in meeting their EEO profiles and goals; and benefits the public who will see the program reinforce larger public-private employment reform in Wisconsin. The pool of TrANS graduates was created for the purpose of addressing underutilization in the skilled trades, an objective that is further reinforced by a parallel retention pilot program, known as the Companywide Reporting. *Whether or not reimbursement is involved, the WisDOT reassures contractors who are in the Companywide Program that TrANS placements still contribute toward fulfilling the new hire goal of 50% women and minorities.* Based on data administered by United States Department of Labor (US DOL), the highway skilled trades remain underutilized for women statewide (less than 6.9%); and for minorities in all counties (% varies by county).

NOTE: *Unless using other advancement strategies, contractors are encouraged to use some or all of this monetary incentive to offset the cut in hourly wages an individual may incur when entering an apprenticeship if the full general laborer hourly rate has been previously paid. No special accounting measures are required.*

## *II. IMPLEMENTATION*

The implementation of ASP 1 is intended to cover only the amount of time it takes for underutilization to be resolved across the trades. This will be measured annually at the county and/or state levels using data administered by WisDWD in relation to goals set by the USDOL-

OFCCP. With appropriate state and federal approvals, we may also do some measurement at the company level.

It is the contractor's responsibility to note on their Certified Payrolls if their employee is a TrANS graduate or a TrANS apprentice. The District EEO Coordinators utilize the information on the Certified Payrolls to track the hours accumulated by TrANS Graduates and TrANS apprentices on WisDOT contracts. Payment under this ASP 1 is made based on the hours recorded off of the Certified Payrolls. Tracking may eventually include improved linkages with the WisDWD apprentice database, information from company and committee level sources.

TrANS is nondiscriminatory by regulation, and is a tool for optional use by contractors to address the underutilization of women and minorities as laborers and apprentices in our industry's skilled trades.

## IV. *TRANS TRAINING*

As part of the contractor's equal employment opportunity affirmative action program, training shall be provided to employees enrolled in apprenticeship and on-the-job training programs as follows:

The contractor shall provide on-the-job training aimed at developing full journey workers in the type of trade or job classifications involved. In the event the contractor subcontracts a portion of the contract work, the contractor shall determine how many, if any, of the trainees are to be trained by the subcontractor provided, however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this training special provision is made applicable to such subcontract.

Training and upgrading of minorities and women toward journey workers status is a primary objective of this training special provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority trainees and women trainees); to the extent such persons are available within a reasonable area of recruitment. The contractor will be given an opportunity and will be responsible for demonstrating the steps that they have taken in pursuance thereof, prior to determination as to whether the contractor is in compliance with this training special provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which they have successfully completed a training course leading to journey workers status or in which they have been employed as a journey worker. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used, the contractor's records should document the findings in each case.

## V. APPRENTICESHIP TRAINING

The Federal Highway Administration's (FHWA) policy is to require full use of all available training and skill improvement opportunities to assure increased participation of minority groups, disadvantaged persons and women in all phases of the highway construction industry. The FHWA On-the-Job Training (OJT) Program requires the State transportation agencies (STAs) to establish apprenticeships and training programs targeted to move women, minorities, and disadvantaged individuals into journey-level positions to ensure that a competent workforce is available to meet highway construction hiring needs, and to address the historical under-representation of members of these groups in highway construction skilled crafts.

The OJT Supportive Services (OJT/SS) Program was established in Title 23 Code of Federal Regulations (CFR), Part 230) to supplement the OJT program and support STA training programs by providing services to highway construction contractors and assistance to highway construction apprentices and trainees. The primary objectives of OJT/SS are:

(1) To increase the overall effectiveness of the State highway agencies' approved training programs.
(2) To seek other ways to increase the training opportunities for women, minorities, and disadvantaged individuals.

The STAs are responsible for establishing procedures, subject to the availability of Surface Transportation and Bridge Funds under 23 U.S.C. §140(b*)* (Nondiscrimination), for the provision of supportive services with respect to training programs approved under 23 CFR, Part 230(a*)* (Equal Employment Opportunity on Federal and Federal-aid Construction Contracts – including Supportive Services).

The contractor and subcontractor shall maintain records to demonstrate compliance with these apprenticeship requirements. Reasonable exemptions and modifications to and from any or all of these requirements will be determined by the Wisconsin Department of Transportation-Civil Rights Office. A request for an exemption or modification, with justification, shall be made in writing, addressed to WisDOT Civil Rights Office, 4802 Sheboygan Avenue, P.O. Box 7965, Rm. 451, Madison, WI 53707.

# ADDITIONAL SPECIAL PROVISION 3
# DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

## 1. Description

### General

a. The disadvantaged business enterprise (DBE) requirements of 49 CFR Part 26 apply to this contract. The department's DBE goal is shown on the cover of the bidding proposal. The contractor can meet the specified contract DBE goal by procuring services or materials from a DBE or by subcontracting work to a DBE. The department calculates the DBE participation as the dollar value of DBE participation included in the bid expressed as a percentage of the total contract bid amount.

b. Under the contract, the contractor agrees to provide the assistance to participating DBE's in the following areas:

   i. Produce accurate and complete quotes.
   ii. Understand highway plans applicable to their work.
   iii. Understand specifications and contract requirements applicable to their work.
   iv. Understand contracting reporting requirements.

c. The department encourages the contractor to assist and develop DBE firms to become fully knowledgeable contractors to successfully perform on its contracts.

d. For information on the disadvantaged business program, visit the department's Civil Rights and Compliance Section website at:

   http://wisconsindot.gov/Pages/doing-bus/civil-rights/dbe/default.aspx

## 2. Definitions

a. Interpret these terms, used throughout this additional special provision, as follows:

   i. **Bid Percentage:** The DBE percentage indicated in the bidding proposal at the time of bid.
   ii. **DBE:** A disadvantaged business enterprise (DBE) certified as a DBE by the department and included on the department's list of certified DBE's who are determined to be ready, willing and able.
   iii. **DBE goal:** The amount of DBE participation expected in the contract as shown on the cover of the Highway Work Proposal.
   iv. **Discretionary Goal:** A contractor assigned DBE goal, typically abbreviated as “Disc” on the cover of the Highway Work Proposal, which is enforced as committed.
   v. **Manufacturer:** A firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract.
   vi. **Supplier:** A firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment required under the contract are bought, kept in stock, and regularly sold or leased to the public.
   vii. **Voluntary Achievement:** The amount of DBE participation achieved and reported in the contract in excess of the assigned goal.

## 3. DBE Percentage Required at Bid Submission

Indicate the bid percentage (i.e. 0% through 100%) of DBE participation on the completed bidding proposal, including projects with discretionary goals. For electronic submittals, show the percentage in the miscellaneous data folder, Item 3, DBE Percent. For paper submittals, show the percentage on the sheet included after the schedule of items. By submission of the bid, the bidder contractually

commits to DBE participation at or above the bid percentage, or certifies that they have utilized comprehensive good faith efforts to solicit and utilize DBE firms to meet the DBE participation requirements of this contract proposal, and that the bid percentage is reflective of these good faith efforts. If the bidder does not indicate the bid percentage of DBE participation on the completed bidding proposal, the department will consider the bid irregular and may reject the bid.

**4. Department's DBE Evaluation Process**

**a. Documentation Submittal**

Within 10 business days after the notification of contract award, the contractor is to identify, by name, the DBE firms whose utilization is intended to satisfy this provision, the items of work of the DBE subcontract or supply agreement and the dollar value of those items of work by completing the Commitment to Subcontract to DBE Form [DT1506] and all necessary attachment A forms, as well as, Good Faith Waiver Form [DT1202] and supporting documentation as necessary. If the contractor fails to furnish the required forms within the specified time, the department may cancel the award. Delay in fulfilling this requirement is not a cause for extension of the contract time and shall not be used as a tool to delay execution.

**i. Bidder Meets DBE Goal**

If the bidder indicates that the contract DBE goal is met, after award and before execution, the department will evaluate the Commitment to Subcontract to DBE Form DT1506 and attachment A(s) to verify the actual DBE percentage achieved. If the DBE commitment is verified, the contract is eligible for execution with respect to the DBE commitment.

**ii. Bidder Does Not Meet DBE Goal**

(1) If the bidder indicates a bid percentage on the Commitment to Subcontract to DBE Form [DT1506] that does not meet the contract DBE goal, the bidder must submit a Good Faith Waiver Form [DT1202] and supporting documentation. After award and before execution, the department will evaluate the bidder's DBE commitment and consider the bidder's good faith waiver request.

(2) The department will review the bidder's good faith waiver request and notify the bidder of one of the following:

a. If the department grants a good faith waiver, the bid is eligible for contract execution with respect to DBE commitment.

b. If the department rejects the good faith waiver request, the department may declare the bid ineligible for execution. The department will provide a written explanation of why the good faith waiver request was rejected. The bidder may appeal the department's rejection as allowed under 7 a. & b.

**5. Department's Criteria for Good Faith Effort**

The Code of Federal Regulations {CFR}, 49 CFR Part 26-Appendix A, is the guiding regulation concerning good faith efforts. However, the federal regulations do not define “good faith” but states that bidder must actively and aggressively attempt to meet the goal. The federal regulations are general and do not include every factor or effort that can be considered. As a result, each state must establish its own processes and consider the factors established in its own process when making a determination of good faith.

a. The department will only grant a good faith waiver if the bidder has made the effort, given the relevant circumstances under the contract that a bidder actively and aggressively seeking to meet the goal would make. The department will evaluate the bidder's good faith effort to determine whether a good faith waiver will be granted. The bidder must demonstrate, on the DT1202 that they

have aggressively solicited DBE participation in an attempt to meet the contract DBE goal and attaining the stated DBE goal is not feasible.

b. The department, in conjunction with industry stakeholders, has developed the following guidance for contractor good faith effort. The guidance and the attached appendices provide a framework for the actions required by all parties in the processing and evaluation of bidder's total efforts to achieve the project specific DBE goal prior to the bid letting date.

c. Prime Contractors should:

i. Document all efforts and decisions made toward achieving the DBE goal on the contract. The bidder should use the Civil Rights & Compliance System [CRCS] and related WisDOT-approved DBE outreach tools, including the Bid Express Small Business Network, to foster DBE participation on all applicable contracts.

ii. Request quotes by identifying potential items to subcontract and solicit. Prime contractors are strongly encouraged to include in their initial contacts a single page including a detailed list of items for which they are accepting quotes, by project, within a letting. *See attached sample entitled "Sample Contractor Solicitation Letter" in Appendix A*. Prime contractors should also indicate a willingness to accept quotes in areas they are planning to perform themselves, ***as required by federal rules***. In some cases, it might be appropriate to use DBE's to do work in a prime contractor's area of specialization.

(1) Solicit quotes through all reasonable and available means from certified DBE firms who match 'possible items to subcontract' and send copies to DBESS office, highlighting areas in which you are seeking quotes. Email is acceptable.

(2) SBN is the preferred outreach tool. https://www.bidx.com/wi/main Other acceptable means include postal mail, email, fax, phone call.

a. Primes must ask DBE firms for a response in their solicitations. See *Sample Contractors Solicitation Letter* in Appendix. This letter can be included as an attachment to the SBN sub-quote request.

b. Solicit quotes at least 10 calendar days prior to the letting date {ideally two Fridays before the letting} to allow DBE firms sufficient time to respond. Prime contractors should contact DBE firms early, asking them if they need help in putting together a quote, or helping to arrange for equipment needs, or solve other problems.

(3) Second solicitation should take place within 5 days

a. An email solicitation is highly recommended for this second solicitation

(4) Upon request, provide interested DBE firms with adequate information about plans, specifications and the requirements of the contract by letter, information session, email, phone call and/or referral.

(5) When potential exists, advise interested DBE firms on how to obtain bonding, line of credit or insurance as may be requested.

(6) Document DBE firm's interest in quoting by taking appropriate steps to follow up initial solicitation with:

a. Email to all prospective DBE firms in relevant work areas
b. Phone call log to DBE firms who express interest via written response or call.
c. Fax/letter confirmation
d. Copy of the DBE quotes
e. Signed copy of Bid Express SBN Record of Subcontractor Outreach Effort.

d. Evaluate DBE quotes as documentation is critical if the prime does not utilize the DBE firm's quote for any reason.

   i. Evaluate DBE firm's capability to perform 'possible items to subcontract' using legitimate reasons, including but not limited to, ***a discussion with the DBE firm*** regarding its capabilities prior to the bid letting. If lack of capacity is your reason for not utilizing the DBE quote, you are required to contact the DBE directly regarding their ability to perform the work indicated in the UCP directory as their work area [NAICS code]; only the work area and/or NAICS code listed in the UCP directory will be counted for DBE credit. Documentation of the conversation is required.

   ii. In striving to meet a DBE conscious contract goal, prime contractors are expected to use DBE quotes that are responsive and reasonable. This includes DBE quotes that are not the low quote.

   iii. **Special Circumstance:** Evaluation of DBE quotes with tied bid items. "Tied quotes are the condition in which a subcontractor submits quotes including multiple areas of expertise across multiple work areas noting that the items and price are tied. Typically this type of quoting represents a cost saving to the prime but is not clearly stated as a discount; tied quotes are usually presented as 'all or none' quote to the prime." When non-DBE subcontractors submit tied bid items in their quotes to the prime, the DBE firms' quote may seem not competitive. In such a case, the following steps are taken in comparing the relevant quotes. These are qualitative examples.

      (1) Compare bid items common to both quotes, noting the reasonableness in the price comparison.

      (2) Review quotes from other firms for the bid items not quoted by the DBE firm to see if combining both can provide the same competitive advantage that the tied bid items offered.

e. After notification of contract award, submit **'Commitment to Subcontract'** form within the time period specified in the contract.

   i. Provide the following information along with department form DT1202:

      (1) The names, addresses, e-mail addresses, telephone numbers of DBE's contacted. The dates of both initial and follow-up contact. A printed copy of SBN solicitation is acceptable.

      (2) A description of information provided to the DBE's regarding the plans, specifications, and estimated quantities for portions of the work to be performed by that DBE.

      (3) Photocopies or electronic copies of all written solicitations to DBE's.

      (4) Documentation of each quote received from a DBE and, if rejected, the reason for that rejection.

      (5) Bidder attendance at any pre-solicitation or pre-bid meetings the department held to inform DBE's of participation opportunities available on the project.

f. The department's DBE Support Services Office is available by phone, email or in writing to request assistance in meeting the DBE goal:

DBE Support Services Office
6150 Fond du Lac Ave.
Milwaukee, WI 53218
Phone: 414-438-4583 / 608-266-6961
Fax: 414-438-5392
E-mail: DOTDBESupportServices@dot.wi.gov

**6. Bidder's Appeal Process**

a. A bidder can appeal the department's decision to deny the bidder's good faith waiver request. The bidder must provide written documentation refuting the specific reasons for rejection as stated in the department's rejection notice. The bidder may meet in person with the department if so requested. Failure to appeal within 7 calendar days after receiving the department's written notice of rejection of a good faith waiver request under constitutes a forfeiture of the bidder's right of appeal. If the bidder does not appeal, the department may declare the bid ineligible for execution.

b. The department will appoint a representative, who did not participate in the original determination, to assess the bidder's appeal. The department will issue a written decision within 7 calendar days after the bidder presents all written and oral testimony. In that written decision, the department will explain the basis for finding that the bidder did or did not meet the contract DBE goal or make an adequate good faith effort to meet the contract DBE goal. The department's decision is final. If the department finds that the bidder did not meet the contract DBE goal or did not make adequate efforts to meet the DBE goal, the department may declare the bid ineligible for execution.

**7. Department's Criteria for DBE Participation**

**Department's DBE List**

a. The department maintains a DBE list on the department's website

http://wisconsindot.gov/Documents/doing-bus/civil-rights/dbe/ucp-directory.xlsx

b. The DBE office is also available to assist at 414-438-4583 or 608-266-6961.

**8. Counting DBE Participation**

**Assessing DBE Work**

a. The department will only count the DBE usage towards the contract DBE goal if the DBE firm is certified as a DBE by one of the unified certification program agencies. If a firm becomes DBE certified before entering into a subcontract, the department may consider that DBE usage towards the contract goal. The department only counts the value of the work a DBE actually performs towards the DBE goal. The department assesses the DBE work as follows:

b. The department counts work performed by the DBE's own resources. The department includes the cost of materials and supplies the DBE obtains for the work. The department also includes the cost of equipment the DBE leases for the work. The department will not include the cost of materials, supplies, or equipment the DBE purchases or leases from the prime contractor or its affiliate, except the department will count non-project specific leases the DBE has in place before the work is advertised.

c. The department counts fees and commissions the DBE charges for providing a bona fide professional, technical, consultant, or managerial services. The department also counts fees and commissions the DBE charges for providing bonds or insurance. The department will only count costs the engineer deems reasonable based on experience or prevailing market rates.

d. If a DBE subcontracts work, the department counts the value of the subcontracted work only if the DBE's subcontractor is also a DBE.

e. The contractor shall maintain records and may be required to furnish periodic reports documenting its performance under this item.

f. It is the prime contractor's responsibility to determine the DBE's ability to perform the work with the use of the UCP directory.

**9. Commercially Useful Function**

a. The department counts expenditures of a DBE toward the DBE goal only if the DBE is performing a commercially useful function on that contract.
b. A DBE is performing a commercially useful function if the following conditions are met:
**c.** For contract work, the DBE is responsible for executing a distinct portion of the contract work and it is carrying out its responsibilities by actually performing, managing, and supervising that work.
**d.** For materials and supplies, the DBE is responsible for negotiating price, determining quality and quantity, ordering, and paying for those materials and supplies.

**10. Trucking**

All bidders are expected to adhere to the department's current trucking policy posted on the HCCI website

http://wisconsindot.gov/Documents/doing-bus/civil-rights/dbe/trucking-utilization-policy.pdf

**11. Manufacturers and Suppliers**

The department counts material and supplies a DBE provides under the contract. The department will give full credit toward the DBE goal if the DBE is a manufacturer of those materials or supplies. The department will give 60 percent credit toward the DBE goal if the DBE is merely a supplier of those materials or supplies. It is the bidder's responsibility to find out if the DBE is considered a supplier or a manufacturer before listing them on Commitment to Subcontract to DBE form DT1506.

**12. DBE Prime**

If the prime contractor is a DBE, the department will only count the work the contractor performs with its own forces, the work DBE subcontractors perform, and the work DBE suppliers or manufacturers perform.

**13. Joint Venture**

If a DBE performs as a participant in a joint venture, the department will only count that portion of the total dollar value of the contract equal to that portion of the work that the DBE performs with its own forces.

**14. Mentor Protégé**

a. If a DBE performs as a participant in a mentor protégé agreement, the department will credit the portion of the work performed by the DBE protégé firm
b. On every other project that the mentor protégé team identifies itself on.
c. For no more than one half of the total contracted DBE goal on any WisDOT project.

**15. DBE Replacement**

In the event a Prime Contractor needs to replace a DBE firm originally listed on the approved DBE Commitment Form DT1506, the Prime Contractor must comply with the department's DBE Replacement Policy located on the DBE page on the following web site:

http://wisconsindot.gov/Documents/doing-bus/civil-rights/dbe/policy-statement.pdf

**16. Changes to the approved DBE Commitment Form DT1506**

If there are any changes to the approved Commitment to Subcontract to DBE Form DT1506, the prime contractor must submit a revised DBE Commitment Form DT1506 and relevant attachment A(s) to the DBE Programs Office within 5 business days.

**17. Contract Modifications**

When additional opportunity is available by contract modifications, the Prime Contractor shall utilize DBE Subcontractors that were committed to equal work items, in the original contract.

**18. Payment**

Costs for conforming to this Additional Special Provision (ASP) and any associated DBE requirements are incidental to the contract.

# APPENDIX A
# Sample Contractor Solicitation Letter Page 1
***This sample is provided as a guide not a requirement***

GFW SAMPLE MEMORANDUM

**TO:** DBE FIRMS

**FROM:** POTENTIAL PRIME CONTRACTOR OR MAJOR SUBCONTRACTOR

**SUBJECT:** **REQUEST FOR DBE QUOTES**

**LET DATE & TIME**

**DATE:** MONTH DAY YEAR

**CC:** DBE OFFICE ENGINEER

---

Our company is considering bidding on the projects indicated on the next page, as a prime and/or a subcontractor for the Wisconsin Department of Transportation Month- date -year Letting. Page 2 lists the projects and work items that we may subcontract for this letting. We are interested in obtaining subcontractor quotes for these projects and work categories. Also note that we are willing to accept quotes in areas we may be planning to perform ourselves as required by federal rules.

Please review page 2, respond whether you plan to quote, highlight the projects and work items you are interested in performing and return it via fax or email within 3 days. Plans, specifications and addenda are available through WisDOT at the DBE Support Services office or at the Highway Construction Contract Information (HCCI) site at http://roadwaystandards.dot.wi.gov/hcci/

Your quote should include all of the costs required to complete the items you propose to perform including labor, equipment, material, and related bonding or insurance. The quote should note items that you are DBE certified to perform, tied items, and any special terms. Page 2, with the indicated projects and items you plan to quote, should be used as a cover sheet for your quote.

Please make every effort to have your quotes into our office by time deadline the prior to the letting date. ***Make sure the correct letting date, project ID and proposal number, unit price and extension are included in your quote.*** We prefer quotes be sent via SBN but prime's alternative's are acceptable. Our office hours are include hours and days. Please call our office as soon as possible prior to the letting if you need information/clarification to prepare your quote at contact number.

If you wish to discuss or evaluate your quote in more detail, contact us after the contract is awarded. Status of the contract can be checked at WisDOT's HCCI site at http://roadwaystandards.dot.wi.gov/hcci/

All questions should be directed to:

Project Manager, John Doe,
Phone: (000) 123-4567
Email: Joe@joetheplumber.com
Fax: (000) 123- 4657

# Sample Contractor Solicitation Letter Page 2

***This sample is provided as a guide not a requirement***

REQUEST FOR QUOTATION

**Prime's Name:** _____

**Letting Date:** _____

**Project ID:** _____

**Please check all that apply**

- ☐ Yes, we will be quoting on the projects and items listed below
- ☐ No, we are not interested in quoting on the letting or its items referenced below
- ☐ Please take our name off your monthly DBE contact list
- ☐ We have questions about quoting this letting. Please have some one contact me at this number

| Prime Contractor 's Contact Person | | DBE Contractor Contact Person | |
|---|---|---|---|
| Phone: | | Phone | |
| Fax: | | Fax | |
| Email: | | Email | |

**Please circle the jobs and items you will be quoting below**

| Proposal No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| County | | | | | | | |

**WORK DESCRIPTION:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Clear and Grub | X | | X | X | | X | X |
| Dump Truck Hauling | X | | X | X | | X | X |
| Curb & Gutter/Sidewalk, Etc. | X | | X | X | | X | X |
| Erosion Control Items | X | | X | X | | X | X |
| Signs and Posts/Markers | X | | X | X | | X | X |
| Traffic Control | | X | X | X | | X | X |
| Electrical Work/Traffic Signals | | X | X | X | | X | |
| Pavement Marking | | X | X | X | X | X | X |
| Sawing Pavement | | X | X | X | X | X | X |
| QMP, Base | X | X | | X | X | X | X |
| Pipe Underdrain | X | | | X | | | |
| Beam Guard | | | | X | X | X | X |
| Concrete Staining | | | | | | | X |
| Trees/Shrubs | X | | | | | | X |

Again please make every effort to have your quotes into our office by time deadline prior to the letting date.

**We prefer quotes be sent via SBN but prime's preferred alternative's are acceptable**.

If there are further questions please direct them to the prime contractor's contact person at phone number.

# APPENDIX B
# BEST PRACTICES FOR PRIME CONTRACTOR & DBE SUBCONTRACTOR GOOD FAITH EFFORT

*This list is not a set of requirements; it is a list of potential strategies*

**Primes**

- Prime contractor open houses inviting DBE firms to see the bid "war room" or providing technical assistance
- Participate in speed networking and mosaic exercises as arranged by DBE office
- Host information sessions not directly associated with a bid letting;
- Participate in a formal mentor protégé or joint venture with a DBE firm
- Participate in WisDOT advisory committees i.e. TRANSAC, or Mega Project committee meetings
- Facilitate a small group DBE 'training session' Clarifying how your firm prepares for bid letting, evaluates subcontractors, preferred qualifications and communication methods
- Encourage subcontractors to solicit and highlight DBE participation in their quotes to you
- Quality of communication, not quantity creates the best results. Contractors should do as thorough a job as possible in communicating with DBE firms before the bid and provide any assistance requested to assure best possible bid.

**DBE**

- DBE firms should contact primes as soon as possible with questions regarding their quotes or bid; seven days prior is optimal.
- Continually check for contract addendums on the HCCI website through the Thursday prior to letting to stay abreast of changes.
- Review the status of contracts on the HCCI website reviewing the 'apparent low bidder' list, and bid tabs at a minimum.
- Prepare a portfolio or list of related projects and prime and supplier references; be sure to note transportation-related projects of similar size and scope, firm expertise and staffing.
- Participate in DBE office assessment programs
- Participate on advisory and mega-project committees
- Sign up to receive the DBE Contracting Update
- Consider membership in relevant industry or contractor organizations
- Active participation is a must. Quote as many projects as you can reasonably work on; quoting the primes and bidding as a prime with the department are the only ways to get work.

# APPENDIX C
## Types of Efforts considered in determining GFE
*This list represents concepts being assessed; analysis requires additional steps*

1. Whether the contractor attended any pre-solicitation or pre-bid meetings that were scheduled by WisDOT to inform DBEs of contracting and subcontracting opportunities;
2. Whether the contractor provided written notice to a reasonable number of specific DBEs that their interest in the contract was being solicited, in sufficient time to allow the DBEs to participate effectively;
3. Whether the contractor followed up initial solicitations of interest by contacting DBEs to determine if the DBEs were interested; returned the phone calls of interested DBE firms.
4. Whether the contractor selected portions of the work to be performed by DBEs in order to increase the likelihood of meeting the DBE goal;
5. Whether the contractor provided interested DBEs with adequate information about the plans, specifications and requirements of the contract;
6. Whether the contractor negotiated in good faith with interested DBEs, not rejected DBEs as unqualified without sound reasons based on a thorough investigation of their capabilities;
7. Whether the contractor made efforts to assist interested DBEs in being more competitive.
8. Whether the contractor effectively used the services of available minority community organizations: minority contractors groups, local, state, and Federal minority business assistance offices, and other organizations that provide assistance to small businesses and DBE firms.
9. Whether Prime used CRCS to identify DBE who specialize in relevant work areas.
10. Whether the contractor used available resources including contacting the DBE office, using WisDOT's website
11. Whether the contractor returned calls of firms expressing interest in a timely manner.

# APPENDIX D
# Good Faith Effort Evaluation Guidance
## *Excerpt from Appendix A of 49 CFR Part 26*

### APPENDIX A TO PART 26 -- GUIDANCE CONCERNING GOOD FAITH EFFORTS

I. When, as a recipient, you establish a contract goal on a DOT assisted contract, a bidder must, in order to be responsible and/or responsive, make good faith efforts to meet the goal. The bidder can meet this requirement in either of two ways. First, the bidder can meet the goal, documenting commitments for participation by DBE firms sufficient for this purpose. Second, even if it doesn't meet the goal, the bidder can document adequate good faith efforts. This means that the bidder must show that it took all necessary and reasonable steps to achieve a DBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not fully successful.

II. In any situation in which you have established a contract goal, part 26 requires you to use the good faith efforts mechanism of this part. As a recipient, it is up to you to make a fair and reasonable judgment whether a bidder that did not meet the goal made adequate good faith efforts. It is important for you to consider the quality, quantity, and intensity of the different kinds of efforts that the bidder has made. The efforts employed by the bidder should be those that one could reasonably expect a bidder to take if the bidder were actively and aggressively trying to obtain DBE participation sufficient to meet the DBE contract goal. Mere pro forma efforts are not good faith efforts to meet the DBE contract requirements. We emphasize, however, that your determination concerning the sufficiency of the firm's good faith efforts is a judgment call: meeting quantitative formulas is not required.

III. The Department also strongly cautions you against requiring that a bidder meet a contract goal (i.e., obtain a specified amount of DBE participation) in order to be awarded a contract, even though the bidder makes an adequate good faith efforts showing. This rule specifically prohibits you from ignoring bona fide good faith efforts.

IV. The following is a list of types of actions which you should consider as part of the bidder's good faith efforts to obtain DBE participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.

A. Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBEs to respond to the solicitation. The bidder must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

B. Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.

C. Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

D. (1) Negotiating in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.

(2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

E. Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non solicitation of bids in the contractor's efforts to meet the project goal.

F. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.

G. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

H. Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.

V. In determining whether a bidder has made good faith efforts, you may take into account the performance of other bidders in meeting the contract. For example, when the apparent successful bidder fails to meet the contract goal, but others meet it, you may reasonably raise the question of whether, with additional reasonable efforts, the apparent successful bidder could have met the goal. If the apparent successful bidder fails to meet the goal, but meets or exceeds the average DBE participation obtained by other bidders, you may view this, in conjunction with other factors, as evidence of the apparent successful bidder having made good faith efforts.

# Appendix E
# Small Business Network [SBN] Overview

The Small Business Network is a part of the Bid Express® service that was created to ensure that prime bidders have a centralized online location to find subs - including small and disadvantaged business enterprises (DBEs). It is available for prime bidders to use as part of their Basic Service subscription. Within the Small Business Network, **Prime Contractors** can:

1. Easily select proposals, work types and items:
    a. After adding applicable work types, select items that you wish to quote. Enter the sub-quote quantities and add comments, if desired. Adding or removing items and work types can be done quickly. If needed, you can save the sub-quote for completion at a later time.
2. Create sub-quotes for the subcontracting community:
    a. Create sub-quotes with ease using the intuitive sub-quote creator. In seven short steps, you can rapidly create a custom sub-quote directed to all subcontractors that bid on the applicable work types. Steps include: provide contact information and sub-quote expiration date, select letting and proposal, add work types and items, specify terms and conditions, upload attachments, and select vendors.
    b. Create a sub-quote to send to subcontractors or suppliers that lists the items in a proposal that you want quoted
    c. Create an unlimited number of sub-quotes for items you want quoted, and optionally mark them as a DBE-preferred request
    d. Add attachments to sub-quotes
3. View sub-quote requests & responses:
    a. After logging into the Bid Express service, you can quickly review all of your sub-quote requests and all unsolicited sub-quote requests from subcontractors. To simplify the Small Business Network home screen, sub-quote requests can be hidden with one click if they are not applicable.
    b. View or receive unsolicited sub-quotes that subcontractors have posted, complete with terms, conditions and pricing
4. View Record of Subcontractor Outreach Effort:
    a. For each sub-quote produced, a *Record of Subcontractor Outreach Effort* is generated that shows the response statistics for a particular sub-quote. If accepted by the letting agency, this report may serve as proof of a "Good Faith" effort in reaching out to the DBE community.
    b. Easily locate pre-qualified and certified small and disadvantaged businesses
    c. Advertise to small and disadvantaged businesses more efficiently and cost effectively
    d. Document your interactions with subs/DBEs by producing an Outreach Report (may be accepted as proof of DBE outreach at the discretion of each agency)

The Small Business Network is a part of the Bid Express® service that was created to ensure that small businesses have a centralized area to access information about upcoming projects. It can help small businesses learn more about opportunities, compete more effectively, network with other contractors and subcontractors, and win more jobs.

1. View and reply to sub-quote requests from primes:
    a. After logging into the Bid Express service, you can quickly review all incoming sub-quote requests and all unsolicited sub-quotes created by your company. Receive notifications by selected work type. To simplify on the Small Business Network home screen, sub-quote requests can be filtered by work types relevant to your interests, or hidden with one click if they are not applicable.
2. Select items when responding to sub-quote requests from primes:
    a. You have the freedom to choose and price any number of items when responding to a sub-quote request. Quantities can be modified, and per-item comments are also available.
    b. View requests for sub-quotes for work that primes have posted for projects they are bidding, add your pricing, terms, and conditions, and submit completed sub-quotes to the requesting primes
    c. Add attachments to a sub-quote
3. Create and send unsolicited sub-quotes to specific contractors:
    a. Create unsolicited sub-quotes with ease using the intuitive sub-quote creator. In eight short steps, you can rapidly create a custom sub-quote directed at any number of specific vendors of your choosing. Steps include: provide contact information and sub-quote expiration date, select letting and proposal, add work types and items, specify terms and conditions, upload attachments, and select vendors.
4. Easily select and price items for unsolicited sub-quotes:
    a. After adding applicable work types, select items that you wish to quote. The extended price calculates automatically, cutting out costly calculation errors. Comments can be provided on an per-item basis as well.
    b. Create an unsolicited sub-quote that lists the items from a proposal that you want to quote, include pricing, terms and conditions, and send it to selected prime/plan holder
    c. Add attachments to a sub-quote
    d. Add unsolicited work items to sub-quotes that you are responding to
5. Easy Access to Valuable Information
    a. Receive a confirmation that your sub-quote was opened by a prime
    b. View Bid Tab Analysis data from past bids, including the high, average and low prices of items.
    c. View important notices and publications from DOT targeted to small and disadvantaged businesses
6. Accessing Small Business Network for WisDOT contracting opportunities
    a. If you are a contractor not yet subscribing to the Bid Express service, go to **www.bidx.com** and select "Order Bid Express." The Small Business Network is a part of the Bid Express Basic Service.
    b. DBE firms can request a Bid Express Small Business Network Account at no cost by calling 414-438-4588

# ADDITIONAL SPECIAL PROVISION 4

## Payment to First-Tier Subcontractors

Within 10 calendar days of receiving a progress payment for work completed by a subcontractor, pay the subcontractor for that work. The prime contractor may withhold payment to a subcontractor if, within 10 calendar days of receipt of that progress payment, the prime contractor provides written notification to the subcontractor and the department documenting "just cause" for withholding payment.

The prime contractor may also withhold routine retainage from payments due subcontractors.

## Payment to Lower-Tier Subcontractors

Ensure that subcontracting agreements at all tiers provide prompt payment rights to lower-tier subcontractors that parallel those granted first-tier subcontractors in this provision.

## Release of Routine Retainage

After granting substantial completion the department may reduce the routine retainage withheld from the prime contractor to 75 percent of the original total amount retained.

When the Department sends the semi-final estimate the department may reduce the routine retainage withheld from the prime contractor to 10 percent of the original total amount retained.

Within 30 calendar days of receiving the semi-final estimate from the department, submit written certification that subcontractors at all tiers are paid in full for acceptably completed work and that no routine retainage is being withheld. The department will pay the prime contractor in full and reduce the routine retainage withheld from the prime contractor to zero when the department approves the final estimate.

This special provision does not limit the right of the department, prime contractor, or subcontractors at any tier to withhold payment for work not acceptably completed or work subject to an unresolved contract dispute.

# ADDITIONAL SPECIAL PROVISIONS 5

## Fuel Cost Adjustment

### A Description

Fuel Cost Adjustments will be applied to partial and final payments for work items categorized in Section B as a payment to the contractor or a credit to the department. ASP-5 shall not apply to any force account work.

### B Categories of Work Items

The following items and Fuel Usage Factors shall be used to determine Fuel Cost Adjustments:

| (1) Earthwork. | | Unit | Gal. Fuel Per Unit |
|---|---|---|---|
| 205.0100 | Excavation Common | CY | 0.23 |
| 205.0200 | Excavation Rock | CY | 0.39 |
| 205.0400 | Excavation Marsh | CY | 0.29 |
| 208.0100 | Borrow | CY | 0.23 |
| 208.1100 | Select Borrow | CY | 0.23 |
| 209.0100 | Backfill Granular | CY | 0.23 |
| 350.0102 | Subbase | CY | 0.28 |
| 350.0104 | Subbase | Ton | 0.14 |
| 350.0115 | Subbase 6-Inch | SY | 0.05 |
| 350.0120 | Subbase 7-Inch | SY | 0.05 |
| 350.0125 | Subbase 8-Inch | SY | 0.06 |
| 350.0130 | Subbase 9-Inch | SY | 0.07 |
| 350.0135 | Subbase 10-Inch | SY | 0.08 |
| 350.0140 | Subbase 11-Inch | SY | 0.09 |
| 350.0145 | Subbase 12-Inch | SY | 0.09 |
| SPV.0035.0100 | EBS Excavation | CY | 0.23 |

### C Fuel Index

A Current Fuel Index (CFI) in dollars per gallon will be established by the Department of Transportation for each month. The CFI will be the price of No. 2 fuel oil, as reported in U.S. Oil Week, using the first issue dated that month. The CFI will be the average of prices quoted for Green Bay, Madison, Milwaukee and Minneapolis.

The base Fuel Index (BFI) for this contract is $2.50 per gallon.

**D Computing the Fuel Cost Adjustment**

The engineer will compute the ratio CFI/BFI each month. If the ratio falls between 0.85 and 1.15, inclusive, no fuel adjustment will be made for that month. If the ratio is less than 0.85 a credit to the department will be computed. If the ratio is greater than 1.15 additional payment to the contractor will be computed. Credit or additional payment will be computed as follows:

(1) The engineer will estimate the quantity of work done in that month under each of the contract items categorized in Section B.

(2) The engineer will compute the gallons of fuel used in that month for each of the contract items categorized in Section B by applying the unit fuel usage factors shown in Section B.

(3) The engineer will summarize the total gallons (Q) of fuel used in that month for the items categorized in Section B.

(4) The engineer will determine the Fuel Cost Adjustment credit or payment from the following formula:

$$FA = \left( \frac{CFI}{BFI} - 1 \right) x\ Q\ x\ BFI$$

(plus is payment to contractor; minus is credit to the department)

| | | | |
|---|---|---|---|
| Where | FA | = | Fuel Cost Adjustment (plus or minus) |
| | CFI | = | Current Fuel Index |
| | BFI | = | Base Fuel Index |
| | Q | = | Monthly total gallons of fuel |

**E Payment**

A Fuel Cost Adjustment credit to the department will be deducted as a dollar amount each month from any sums due to the contractor. A Fuel Cost Adjustment payment to the contractor will be made as a dollar amount each month.

Upon completion of the work under the contract, any difference between the estimated quantities and the final quantities will be determined. An average CFI, calculated by averaging the CFI for all months that fuel cost adjustment was applied, will be applied to the quantity differences. The average CFI shall be applied in accordance with the procedure set forth in Section D.

# ADDITIONAL SPECIAL PROVISION 6

## ASP 6 - Modifications to the standard specifications

*Make the following revisions to the standard specifications:*

---

**450.3.2.1 General**

*Replace the entire text with the following effective with the January 2015 letting:*

(1) Do not place asphaltic mixture when the air temperature approximately 3 feet above grade, in shade, and away from artificial heat sources is less than 36 F for upper layers or 32 F for lower layers unless the engineer allows in writing. The contractor should place HMA pavement for projects on or north of STH 29 between May 1 and October 15 inclusive and for projects south of STH 29 between April 15 and November 1 inclusive. Notify the engineer at least one business day before paving.

(2) Unless the contract specifies otherwise, conform to the following:

- Keep the road open to all traffic during construction.
- Prepare the existing foundation for treatment as specified in 211.
- Incorporate loose roadbed aggregate as a part of preparing the foundation, in shoulder construction, or dispose of as the engineer approves.

(3) Place asphaltic mixture only on a prepared, firm, and compacted base, foundation layer, or existing pavement substantially surface-dry and free of loose and foreign material. Do not place over frozen subgrade or base, or where the roadbed is unstable.

---

**450.5 Payment**

*Replace the entire text with the following effective with the May 2015 letting:*

(1) All costs of furnishing, maintaining, and operating the truck scale or other weighing equipment and furnishing the weigh tickets are incidental to the contract.

(2) Nonconforming material allowed to remain in place is subject to price adjustment under 105.3.2.

(3) Full-depth sawing to remove integrally placed safety edge where not required is incidental to the contract.

(4) The contractor is responsible for the quality of HMA pavement placed in cold weather. If because of an excusable compensable delay under 108.10.3, the engineer directs the contractor to pave when the temperature is less than 36 F for the upper layer or less than 32 F for lower layers, the department:

- Will relieve the contractor of responsibility for damage and defects the engineer attributes to cold weather paving.
- Will not assess disincentives for density or ride.

---

**455.3.2.1 General**

*Replace the paragraphs one and two with the following effective with the January 2015 letting:*

(1) Apply tack coat only when the air temperature is 32 F or more unless the engineer approves otherwise in writing. Before applying tack coat ensure that the surface is dry and reasonably free of loose dirt, dust, or other foreign matter. Do not apply if weather or surface conditions are unfavorable or before impending rains.

(2) Use tack material of the type and grade the contract specifies. The contractor may, with the engineer's approval, dilute tack material as allowed under 455.2.4. Provide calculations using the asphalt content as-received from the supplier and subsequent contractor dilutions to show that as-placed material has 50 percent or more residual asphalt content. Apply at 0.050 to 0.070 gallons per square yard, after dilution, unless the contract designates otherwise. The engineer may adjust the application rate based on surface conditions. Limit application each day to the area the contractor expects to pave during that day.

### 460.2.2.3 Aggregate Gradation Master Range

*Replace paragraph one with the following effective with the December 2014 letting:*

(1) Ensure that the aggregate blend, including recycled material and mineral filler, conforms to the gradation requirements in table 460-1. The values listed are design limits; production values may exceed those limits.

**TABLE 460-1 AGGREGATE GRADATION MASTER RANGE AND VMA REQUIREMENTS**

| SIEVE | PERCENTS PASSING DESIGNATED SIEVES | | | | | | |
|---|---|---|---|---|---|---|---|
| | NOMINAL SIZE | | | | | | |
| | 37.5 mm | 25.0 mm | 19.0 mm | 12.5 mm | 9.5 mm | SMA 12.5 mm | SMA 9.5 mm |
| 50.0-mm | 100 | | | | | | |
| 37.5-mm | 90 –100 | 100 | | | | | |
| 25.0-mm | 90 max | 90 -100 | 100 | | | | |
| 19.0-mm | ___ | 90 max | 90 -100 | 100 | | 100 | |
| 12.5-mm | ___ | ___ | 90 max | 90 -100 | 100 | 90 - 97 | 100 |
| 9.5-mm | ___ | ___ | ___ | 90 max | 90 -100 | 58 - 72 | 90 - 100 |
| 4.75-mm | ___ | ___ | ___ | ___ | 90 max | 25 - 35 | 35 - 45 |
| 2.36-mm | 15 – 41 | 19 - 45 | 23 - 49 | 28 - 58 | 20 - 65 | 15 - 25 | 18 - 28 |
| 75-µm | 0 – 6.0 | 1.0 - 7.0 | 2.0 - 8.0 | 2.0 - 10.0 | 2.0 - 10.0 | 8.0 - 12.0 | 10.0 - 14.0 |
| % MINIMUM VMA | 11.0 | 12.0 | 13.0 | 14.0[1] | 15.0[2] | 16.0 | 17.0 |

[1] 14.5 for E-0.3 and E-3 mixes.

[2] 15.5 for E-0.3 and E-3 mixes.

---

### 460.3.4 Cold Weather Paving

*Add a new subsection as follows effective with the May 2015 letting:*

### 460.3.4 Cold Weather Paving

### 460.3.4.1 Cold Weather Paving Plan

(1) Submit a written cold weather paving plan to the engineer at the preconstruction meeting. In that plan outline material, operational, and equipment changes for paving when the air temperature approximately 3 feet above grade, in shade, and away from artificial heat sources is less than 40 F. Include the following:

- Use a department-accepted HMA mix design that incorporates a warm mix additive from the department's approved products list. Do not use a foaming process that introduces water into the mix.
- Use additional rollers.

(2) Engineer written acceptance is required for the cold weather paving plan. Engineer acceptance of the plan does not relieve the contractor of responsibility for pavement performance except as specified in 450.5(4).

### 460.3.4.2 Cold Weather Paving Operations

(1) Do not place asphaltic mixture when the air temperature approximately 3 feet above grade, in shade, and away from artificial heat sources is less than 40 F unless a valid engineer-accepted cold weather paving plan is in effect.

(2) If the national weather service forecast for the construction area predicts ambient air temperature less than 40 F at the projected time of paving within the next 24 hours, confirm or submit revisions to a previously engineer-accepted cold weather paving plan for engineer validation. Upon validation of the plan, the engineer will allow paving for the next day. Once in effect, pave conforming to the engineer-accepted cold weather paving plan for the balance of that work day or shift regardless of the temperature at the time of paving.

**460.4 Measurement**

*Add paragraph two as follows effective with the January 2015 letting:*

(2) The department will measure HMA Cold Weather Paving by the ton of HMA mixture for pavement placed conforming to an engineer-accepted cold weather paving plan.

---

**460.5.1 General**

*Revise paragraph one as follows effective with the January 2015 letting:*

(1) The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 460.1100 | HMA Pavement Type E-0.3 | TON |
| 460.1101 | HMA Pavement Type E-1 | TON |
| 460.1103 | HMA Pavement Type E-3 | TON |
| 460.1110 | HMA Pavement Type E-10 | TON |
| 460.1130 | HMA Pavement Type E-30 | TON |
| 460.1132 | HMA Pavement Type E-30X | TON |
| 460.1700 | HMA Pavement Type SMA | TON |
| 460.2000 | Incentive Density HMA Pavement | DOL |
| 460.4000 | HMA Cold Weather Paving | TON |

---

**460.5.2.2 Disincentive for HMA Pavement Density**

*Revise paragraph two as follows effective with the January 2015 letting:*

(2) The department will not assess density disincentives for pavement placed in cold weather because of a department-caused delay as specified in 450.5(4).

---

**460.5.2.4 Cold Weather Paving**

*Add a new subsection as follows effective with the May 2015 letting:*

**460.5.2.4 Cold Weather Paving**

(1) Payment for HMA Cold Weather Paving is full compensation for additional materials and equipment specified for cold weather paving under 460.3.4 including costs for preparing, administering, and following the contractor's cold weather paving plan. The department will not pay for HMA Cold Weather Paving for HMA placed on days when the department is assessing liquidated damages.

(2) If HMA pavement is placed under 460.3.4 and the HMA Cold Weather Paving bid item is not in the contract, the department will pay for the additional costs specified in 460.5.2.4(1) as extra work. The department will pay separately for HMA pavement under the appropriate HMA Pavement bid items.

---

**465.2 Materials**

*Replace paragraph two with the following effective with the December 2014 letting:*

(2) Under the other 465 bid items, the contractor need not submit a mix design. Furnish aggregates mixed with a type AC asphaltic material, except under the Asphaltic Curb bid item furnish PG58-28 asphaltic material. Use coarse and fine mineral aggregates uniformly coated and mixed with the asphaltic material in an engineer-approved mixing plant. The contractor may include reclaimed asphaltic pavement materials in the mixture.

**506.3.2 Shop Drawings**

*Replace the entire text with the following effective with the May 2015 letting:*

(1) Ensure that shop drawings conform to the contract plans and provide additional details, dimensions, computations, and other information necessary for completely fabricating and erecting the work. Include project and structure numbers on each shop drawing sheet.

(2) Check shop drawings and submit electronically to the department for review before beginning fabrication. For primary fabrication items, also certify that shop drawings conform to quality control standards by submitting department form DT2333. Department review does not relieve the contractor from responsibility for errors or omissions on shop drawings.

(3) Shop drawings are part of the contract. The department must approve differences between shop drawings and contract plans. The contractor bears the costs of department-approved substitutions. Do not deviate from or revise drawings without notifying the department and resubmitting revised drawings.

(4) Ensure that the fabricator delivers 3 sets of shop drawings for railroad structures to the railroad company upon contract completion.

## Bid Items Added

*Add the following new bid item effective with the January 2015 letting:*

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 460.4000 | HMA Cold Weather Paving | TON |

## Errata

*Make the following corrections to the standard specifications:*

**501.3.2.4.4 Water Reducer**

*Correct errata by deleting the reference to footnote 6 for grade D concrete.*

(1) Add a water reducing admixture conforming to 501.2.3. Determine the specific type and rate of use based on the atmospheric conditions, the desired properties of the finished concrete and the manufacturer's recommended rate of use. The actual rate of use shall at least equal the manufacturer's recommended rate, and both the type and rate used require the engineer's approval before use.

**506.5 Payment**

*Correct errata by changing the reference to 506.3.22.*

(9) The department will limit costs for inspections conducted under 506.3.22 to $0.05 per pound of material and deduct costs in excess of that amount from payment due the contractor. The department will determine costs for in-house inspections based on hourly rates for department staff plus overhead and use invoiced costs for contracted-out inspections. The department will administer deductions for the contractor's share of the total inspection cost under the Excess Costs For Fabrication Shop Inspection administrative item.

# ADDITIONAL SPECIAL PROVISION 7

A. Reporting 1st Tier and DBE Payments During Construction

1. Comply with reporting requirements specified in the department's Civil Rights Compliance, Contractor's User Manual, Sublets and Payments.
2. Report payments to all DBE firms within 10 calendar days of receipt of a progress payment by the department or a contractor for work performed, materials furnished, or materials stockpiled by a DBE firm. Report the payment as specified in A(1) for all work satisfactorily performed and for all materials furnished or stockpiled.
3. Report payments to all first tier subcontractor relationships within 10 calendar days of receipt of a progress payment by the department for work performed. Report the payment as specified in A(1) for all work satisfactorily performed.
4. All tiers shall report payments as necessary to comply with the DBE payment requirement as specified in A(2).
5. Require all first tier relationships, DBE firms and all other tier relationships necessary to comply with the DBE payment requirement in receipt of a progress payment by contractor to acknowledge receipt of payment as specified in A(1), (2), (3) and (4).
6. All agreements made by a contractor shall include the provisions in A(1), (2), (3), (4) and (5), and shall be binding on all first tier subcontractor relationships and all contractors and subcontractors utilizing DBE firms on the project.

B. Costs for conforming to this special provision are incidental to the contract.

# ADDITIONAL SPECIAL PROVISION 9
# Electronic Certified Payroll Submittal

(1) Use the department's Civil Rights Compliance System (CRCS) to submit certified payrolls electronically. Details are available online through the department's highway construction contractor information (HCCI) site on the Labor, Wages, and EEO Information page at:

http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/default.aspx

(2) Ensure that all tiers of subcontractors, as well as all trucking firms, submit their weekly certified payrolls electronically through CRCS. These payrolls are due within seven calendar days following the close of the payroll period. Every firm providing physical labor towards completing the project is a subcontractor under this special provision.

(3) Upon receipt of contract execution, promptly make all affected firms aware of the requirements under this special provision and arrange for them to receive CRCS training as they are about to begin payrolls. The department will provide training either in a classroom setting at one of our regional offices or by telephone. Contact Tess Mulrooney at 608-267-4489 to schedule the training.

(4) The department will reject all paper submittals of forms DT-1816 and DT-1929 for information required under this special provision. All costs for conforming to this special provision are incidental to the contract.

(5) Firms wishing to export payroll data from their computer system into CRCS should have their payroll coordinator send several sample electronic files to Tess two months before a payroll needs to be submitted. Not every contractor's payroll system is capable of producing export files. For details, see pages 17-22 of the CRCS System Background Information manual available online on the Labor, Wages, and EEO Information page at:

http://wisconsindot.gov/Documents/doing-bus/civil-rights/labornwage/crcs-payroll-manual.pdf

**REQUIRED CONTRACT PROVISIONS**
**FEDERAL-AID CONSTRUCTION CONTRACTS**

I. General
II. Nondiscrimination
III. Nonsegregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Compliance with Governmentwide Suspension and Debarment Requirements
XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

## I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

## II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

**1. Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

**2. EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

**3. Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

**4. Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

**5. Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

**6. Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

**7. Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

**8. Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

**9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

**10. Assurance Required by 49 CFR 26.13(b):**

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

**11. Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

**III. NONSEGREGATED FACILITIES**

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

**IV. DAVIS-BACON AND RELATED ACT PROVISIONS**

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

**1. Minimum wages**

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

**2. Withholding**

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

**3. Payrolls and basic records**

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee ( e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

**4. Apprentices and trainees**

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

**5. Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

**6. Subcontracts.** The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

**7. Contract termination: debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

**8. Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

**9. Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

**10. Certification of eligibility.**

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

## V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

**1. Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

**2. Violation; liability for unpaid wages; liquidated damages**. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

**3. Withholding for unpaid wages and liquidated damages.** The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

**4. Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

## VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;
(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

## VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

## VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

**IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

**X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION**

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

**2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:**

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

**Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:**

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

**XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS**

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

**SEPTEMBER 2002**

## NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

1. The Offeror's or Bidder's attention is called to the "Employment Practices" and "Equal Opportunity Clause" set forth in the Required Contract Provisions, FHWA 1273.

2. The goals and timetables for minority and female participation expressed in percentage terms for the contractor's aggregate work force in each trade, on all construction work in the covered area, are as follows:

**Goals for Minority Participation for Each Trade:**

| County | % | County | % | County | % |
|---|---|---|---|---|---|
| Adams | 1.7 | Iowa | 1.7 | Polk | 2.2 |
| Ashland | 1.2 | Iron | 1.2 | Portage | 0.6 |
| Barron | 0.6 | Jackson | 0.6 | Price | 0.6 |
| Bayfield | 1.2 | Jefferson | 7.0 | Racine | 8.4 |
| Brown | 1.3 | Juneau | 0.6 | Richland | 1.7 |
| Buffalo | 0.6 | Kenosha | 3.0 | Rock | 3.1 |
| Burnett | 2.2 | Kewaunee | 1.0 | Rusk | 0.6 |
| Calumet | 0.9 | La Crosse | 0.9 | St. Croix | 2.9 |
| Chippewa | 0.5 | Lafayette | 0.5 | Sauk | 1.7 |
| Clark | 0.6 | Langlade | 0.6 | Sawyer | 0.6 |
| Columbia | 1.7 | Lincoln | 0.6 | Shawano | 1.0 |
| Crawford | 0.5 | Manitowoc | 1.0 | Sheboygan | 7.0 |
| Dane | 2.2 | Marathon | 0.6 | Taylor | 0.6 |
| Dodge | 7.0 | Marinette | 1.0 | Trempealeau | 0.6 |
| Door | 1.0 | Marquette | 1.7 | Vernon | 0.6 |
| Douglas | 1.0 | Menominee | 1.0 | Vilas | 0.6 |
| Dunn | 0.6 | Milwaukee | 8.0 | Walworth | 7.0 |
| Eau Claire | 0.5 | Monroe | 0.6 | Washburn | 0.6 |
| Florence | 1.0 | Oconto | 1.0 | Washington | 8.0 |
| Fond du Lac | 1.0 | Oneida | 0.6 | Waukesha | 8.0 |
| Forest | 1.0 | Outagamie | 0.9 | Waupaca | 1.0 |
| Grant | 0.5 | Ozaukee | 8.0 | Waushara | 1.0 |
| Green | 1.7 | Pepin | 0.6 | Winnebago | 0.9 |
| Green Lake | 1.0 | Pierce | 2.2 | Wood | 0.6 |

**Goals for female participation for each trade: 6.9%**

These goals are applicable to all the contractor's construction work, (whether or not it is federal or federally assisted), performed in the covered area. If the contractor performs construction work in the geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The contractor's compliance with the Executive Order and the Regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the Executive Order and the Regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any construction subcontract in excess of $10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor, employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

   As referred to in this section, the Director means:

   Director
   Office of Federal Contract Compliance Programs
   Ruess Federal Plaza
   310 W. Wisconsin Ave., Suite 1115
   Milwaukee, WI 53202

   The "Employer Identification Number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

4. As used in this notice, and in the contract resulting from solicitation, the "covered area" is the county(ies) in Wisconsin to which this proposal applies.

**APRIL 2013**

## ADDITIONAL FEDERAL-AID PROVISIONS

NOTICE TO ALL BIDDERS

To report bid rigging activities call:

**1-800-424-9071**

The U.S. Department of Transportation (DOT) operates the above toll-free "hotline" Monday through Friday, 8:00 a.m. to 5:00 p.m., Eastern Time. Anyone with knowledge of possible bid rigging, bidding collusion, or other fraudulent activities should use the "hotline" to report such activities.

The "hotline" is part of the DOT's continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

**Effective August 2015 letting**

## BUY AMERICA PROVISION

All steel and iron materials permanently incorporated in this project shall be domestic products and all manufacturing and coating processes for these materials from smelting forward in the manufacturing process must have occurred within the United States. Coating includes epoxy coating, galvanizing, painting and any other coating that protects or enhances the value of a material subject to the requirements of Buy America. The exemption of this requirement is the minimal use of foreign materials if the total cost of such material permanently incorporated in the product does not exceed one-tenth of one percent (1/10 of 1%) of the total contract cost or $2,500.00, whichever is greater. For purposes of this paragraph, the cost is that shown to be the value of the subject products as they are delivered to the project. The contractor shall take actions and provide documentation conforming to CMM 2-28.5 to ensure compliance with this “Buy America” provision.

http://wisconsindot.gov/rdwy/cmm/cm-02-28.pdf

Upon completion of the project certify to the engineer, in writing using department form WS4567, that all steel, iron, and coating processes for steel or iron incorporated into the contract work conform to these "Buy America" provisions. Attach a list of exemptions and their associated costs to the certification form. Department form WS4567 is available at:

http://wisconsindot.gov/rdwy/worksheets/ws4567.doc

**Effective with September 2004 Letting**

# WISCONSIN DEPARTMENT OF TRANSPORTATION
# DIVISION OF HIGHWAYS AND TRANSPORTATION FACILITIES

## SUPPLEMENTAL REQUIRED CONTRACT PROVISIONS


I. Wage Rates, Hours of labor and payment of Wages
II. Payroll Requirements
III. Postings at the Site of the Work
IV. Affidavits
V. Wage Rate Redistribution
VI. Additional Classifications


## I. WAGE RATES, HOURS OF LABOR AND PAYMENT OF WAGES

The schedule of "Minimum Wage Rates" attached hereto and made a part hereof furnishes the prevailing wage rates that have been determined pursuant to Section 103.50 of the Wisconsin Statutes. These wage rates are the minimum required to be paid to the various laborers, workers, mechanics and truck drivers employed by contractors and subcontractors on the construction work embraced by the contract and subject to prevailing hours and wages under Section 103.50, Stats. If necessary to employ laborers, workers, mechanics or truck drivers whose classification is not listed on the schedule, they shall be paid at rates conformable to those listed for similar classifications. Apprentices shall be paid at rates not less than those prescribed in their state indenture contacts.

While the wage rates shown are the minimum rates required by the contract to be paid during its life, this in not a representation that labor can be obtained at these rates. It is the responsibility of bidders to inform themselves as to the local labor conditions and prospective changes or adjustments of wage rates. No increase in the contract price shall be allowed or authorized on account of the payment of wage rates in excess of those listed herein.

Pursuant to Section 103.50 of the Wisconsin Statutes, the prevailing hours of labor have been determined to be up to 10 hours per day and 40 hours per calendar week Monday through Friday. If any laborer, worker, mechanic or truck driver is permitted or required to work more than the prevailing number of hours per day or per calendar week on this contract, they shall be paid for all hours in excess of the prevailing hours at a rate of at least one and one-half (1 1/2) times their hourly rate of pay. All work on Saturday, Sunday and the following holidays is to be paid at time and a half: (1) January 1, (2) the last Monday in May, (3) July 4, (4) the first Monday in September, (5) the fourth Thursday in November, (6) December 25, (7) the day before if January 1, July 4 or December 25 falls on a Saturday and (8) the day following if January 1, July 4 or December 25 falls on a Sunday.

All laborers, workers, mechanics and truck drivers shall be paid unconditionally not less often than once a week. Persons who own and operate their own trucks must receive the prevailing truck driver rate for the applicable type of truck (i.e. 2 axle, 3 or more axle, articulated, eculid or dumptor) he or she operates, plus an agreed upon amount for the use of his or her truck. Every owner-operator MUST be paid separately for their driving and for the use of their truck.

For those projects subject to the requirements of the Davis-Bacon Act, the Secretary of Labor will also have determined "Minimum Wage Rates" for work to be performed under the contract. These rates are, for all or most of the labor, worker, mechanic or truck driver classifications, identical to those established under Section 103.50 of the Wisconsin Statutes. In the event the rates are not identical, the higher of the two rates will govern.

## II. PAYROLL REQUIREMENTS

All contractors and subcontractors must submit weekly Certified Payrolls and Compliance Statement verifying that all laborers, workers, mechanics and truck drivers working on the project have been paid the prevailing wage rates for all work performed under the contract required by Section 103.50 of the Wisconsin Statutes.

## III. POSTINGS AT THE SITE OF THE WORK

In addition to the required postings furnished by the Department, the contractor shall post the following in at least one conspicuous place at the site of work:

a. "NOTICE TO EMPLOYEES," which provides information required to be posted by the provisions of Section 103.50 of the Wisconsin Statutes.

b. A copy of the State of Wisconsin Minimum Wages Rates. (Four pages.)

c. A copy of the contractor's Equal Employment Opportunity Policy.

d. On any project involving federal aid, in addition to the furnished postings, the contractor shall post a copy of the "Davis-Bacon Act, Minimum Wage Rates". (Three pages.)

## IV. WAGE RATE REDISTRIBUTION

The amount specified as the hourly basic rate of pay and the amount(s) specified as the fringe benefit contribution(s), for all classes of laborers, workers, mechanics or truck drivers may be redistributed, when necessary, to conform to those specified in any applicable collective bargaining agreement, provided that both parties to such agreement

request and receive the approval for any such redistribution from both the Department of Transportation and the Department of Workforce Development prior to the implementation of such redistribution.

## V. ADDITIONAL CLASSIFICATIONS

Any unlisted laborer or mechanic classification that is needed to perform work on this project, and is not included within the scope of any of the classifications listed in the application prevailing wage rate determination, may be added after award only if all of the following criteria have been met:

1. The affected employer(s) must make a written request to WisDOT Central Office to utilize the unlisted classification on this project.

2. The request must indicate the scope of the work to be performed by the unlisted classification and must indicate the proposed wage/fringe benefit package that the unlisted classification is to receive.

3. The work to be performed by the unlisted classification must not be performed by a classification that is included in the applicable prevailing wage rate determination.

4. The unlisted classification must be commonly employed in the area where the project is located.

5. The proposed wage/fringe benefit package must bear a reasonable relationship to those set forth in the applicable prevailing wage rate determination.

6. The request should be made prior to the actual performance of the work by the unlisted classification.

7. DWD must approve the use of the unlisted classification and the proposed wage/fringe benefit package. USDOL also must approve the use of the unlisted classification and the proposed wage/fringe benefit package on federal aid projects.

8. WisDOT and DWD may amend the proposed wage/fringe benefit package, as deemed necessary, and may set forth specific employment ratios and scope of work requirements in the approval document.

The approved wage/fringe benefit package shall be paid to all laborers, workers, mechanics or truck drivers performing work within the scope of that performed by the unlisted classification, from the first day on which such work is performed. In the event that work is performed by the unlisted classification prior to approval, the wage/fringe benefit package to be paid for such work must be in conformance with the wage/fringe

benefit package approved for such work. Under this arrangement a retroactive adjustment in wages and/or fringe benefits may be required to be made to the affected laborers, workers, mechanics or truck drivers by the affected employer(s).

**ANNUAL PREVAILING WAGE RATE DETERMINATION**
**FOR ALL STATE HIGHWAY PROJECTS**
**MILWAUKEE COUNTY**

Compiled by the State of Wisconsin - Department of Workforce Development
for the Department of Transportation
Pursuant to s. 103.50, Stats.
Issued on May 1, 2015

**CLASSIFICATION:** Contractors are required to call the Department of Workforce Development if there are any questions reqarding the proper trade or classification to be used for any worker on a public works project.

**OVERTIME:** Time and one-half must be paid for all hours worked over 10 hours per day and 40 hours per calendar week and for all hours worked on Saturday, Sunday and the following six (6) holidays: January 1; the last Monday in May; July 4; the 1st Monday in September; the 4th Thursday in November; December 25; the day before if January 1, July 4 or December 25 falls on a Saturday; the day following if January 1, July 4 or December 25 falls on a Sunday.

**FUTURE INCREASE:** If indicated for a specific trade or occupation, the full amount of such increase MUST be added to the "TOTAL" indicated for such trade or occupation on the date(s) such increase(s) becomes effective.

**PREMIUM PAY:** If indicated for a specific trade or occupation, the full amount of such pay MUST be added to the "HOURLY BASIC RATE OF PAY" indicated for such trade or occupation, whenever such pay is applicable.

**SUBJOURNEY:** Wage rates may be available for some of the classifications indicated below. Any employer that desires to use any subjourney classification on a project MUST request the applicable wage rate from the Department of Workforce Development PRIOR to the date such classification is used on such project. Form ERD-10880 is available for this purpose and can be obtained by writing to the Department of Workforce Development, Equal Rights Division, P.O. Box 8928, Madison, WI 53708.

| TRADE OR OCCUPATION | HOURLY BASIC RATE OF PAY | HOURLY FRINGE BENEFITS | TOTAL |
|---|---|---|---|
| | $ | $ | $ |
| Bricklayer, Blocklayer or Stonemason | 35.37 | 17.99 | 53.36 |
| Carpenter | 33.68 | 19.99 | 53.67 |
| Cement Finisher | 32.75 | 19.21 | 51.96 |
| Future Increase(s): Add $1.87 on 6/1/15; Add $1.75 on 6/1/16. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.40/hr when the Wisconsin Department of Transportation or responsible governing agency requires that work be performed at night under artificial illumination with traffic control and the work is completed after sunset and before sunrise. | | | |
| Electrician | 33.93 | 22.77 | 56.70 |
| Premium Pay: DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. | | | |
| Fence Erector | 23.73 | 19.09 | 42.82 |
| Ironworker | 30.77 | 23.97 | 54.74 |
| Premium Pay: DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. | | | |
| Line Constructor (Electrical) | 37.43 | 18.19 | 55.62 |
| Painter | 29.22 | 16.69 | 45.91 |
| Pavement Marking Operator | 30.27 | 18.79 | 49.06 |
| Piledriver | 30.11 | 26.51 | 56.62 |
| Future Increase(s): Add $1.50/hr on 6/1/2015; Add $1.60/hr on 6/1/2016. Premium Pay: Add $.65/hr for Piledriver Loftsman; Add $.75/hr for Sheet Piling Loftsman. DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. | | | |
| Roofer or Waterproofer | 29.40 | 17.05 | 46.45 |
| Teledata Technician or Installer | 24.89 | 17.15 | 42.04 |
| Tuckpointer, Caulker or Cleaner | 33.76 | 17.82 | 51.58 |

| TRADE OR OCCUPATION | HOURLY BASIC RATE OF PAY | HOURLY FRINGE BENEFITS | TOTAL |
|---|---|---|---|
| | $ | $ | $ |
| Underwater Diver (Except on Great Lakes) | 35.40 | 15.90 | 51.30 |
| Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY | 35.55 | 15.57 | 51.12 |
| Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY | 31.60 | 14.64 | 46.24 |
| Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY | 27.65 | 13.44 | 41.09 |
| Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY | 25.68 | 12.83 | 38.51 |
| Groundman - ELECTRICAL LINE CONSTRUCTION ONLY | 21.75 | 11.63 | 33.38 |
| **TRUCK DRIVERS** | | | |
| Single Axle or Two Axle | 25.18 | 18.31 | 43.49 |
| Future Increase(s): Add $1.15/hr on 6/1/2015. Premium Pay: DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. | | | |
| Three or More Axle | 25.28 | 18.31 | 43.59 |
| Future Increase(s): Add $1.15/hr on 6/1/2015. Premium Pay: DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. | | | |
| Articulated, Euclid, Dumptor, Off Road Material Hauler | 30.27 | 21.15 | 51.42 |
| Future Increase(s): Add $1.25/hr on 6/1/2015; Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm. | | | |
| Pavement Marking Vehicle | 23.16 | 17.13 | 40.29 |
| Shadow or Pilot Vehicle | 24.37 | 17.77 | 42.14 |
| Truck Mechanic | 24.52 | 17.77 | 42.29 |
| **LABORERS** | | | |
| General Laborer | 27.06 | 20.03 | 47.09 |
| Future Increase(s): Add $1.05/hr eff. 06/01/2015; Add $1.00/hr eff. 06/01/2016; Add $1.00/hr eff. 06/01/2017 Premium Pay: Add $.15/hr for air tool operator, joint sawer and filler (pavement), vibrator or tamper operator (mechanical hand operated), chain saw operator and demolition burning torch laborer; Add $.35/hr for bituminous worker (raker and luteman), formsetter (curb, sidewalk and pavement) and strike off man; Add $.50/hr for line and grade specialist; Add $.65/hr for blaster and powderman; Add $2.01/hr for topman; Add $2.46/hr for bottomman; Add $3.23/hr for pipelayer. / DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period). | | | |
| Asbestos Abatement Worker | 22.05 | 18.41 | 40.46 |
| Landscaper | 27.06 | 20.03 | 47.09 |
| Future Increase(s): Add $1.05/hr eff. 06/01/2015; Add $1.00/hr eff. 06/01/2016; Add $1.00/hr eff. 06/01/2017 Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period). | | | |
| Flagperson or Traffic Control Person | 22.55 | 19.37 | 41.92 |

| TRADE OR OCCUPATION | HOURLY BASIC RATE OF PAY | HOURLY FRINGE BENEFITS | TOTAL |
|---|---|---|---|
| | $ | $ | $ |
| Fiber Optic Laborer (Outside, Other Than Concrete Encased) | 17.71 | 16.01 | 33.72 |
| Railroad Track Laborer | 14.50 | 4.39 | 18.89 |
| **HEAVY EQUIPMENT OPERATORS** | | | |
| Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity Of Over 4,000 Lbs., Crane With Boom Dollies; Traveling Crane (Bridge Type).<br>Future Increase(s): Add $1.25/hr on 6/1/2015; Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017.<br>Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm. | 37.72 | 21.15 | 58.87 |
| Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With A Lifting Capacity Of 4,000 Lbs., & Under; Dredge (NOT Performing Work on the Great Lakes); Licensed Boat Pilot (NOT Performing Work on the Great Lakes); Pile Driver.<br>Future Increase(s): Add $1.25/hr on 6/1/2015; Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017.<br>Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm. | 37.22 | 21.15 | 58.37 |
| Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Asphalt Heater, Planer & Scarifier; Asphalt Milling Machine; Asphalt Screed; Automatic Subgrader (Concrete); Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Bituminous (Asphalt) Plant & Paver, Screed; Boatmen (NOT Performing Work on the Great Lakes); Boring Machine (Directional, Horizontal or Vertical); Bridge (Bidwell) Paver; Bulldozer or Endloader; Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, VIbratory/Sonic, Manual or Remote); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Conveyor System; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump, Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Concrete Spreader & Distributor; Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Crane WIth a Lifting Capacity of 25 Tons or Under; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Grout Pump; Hydro-Blaster (10,000 PSI or Over); Loading Machine (Conveyor); Material or Stack Hoist; Mechanic or Welder; Milling Machine; Post Hole Digger or Driver; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Sideboom; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Straddle Carrier or Travel Lift; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Trencher (Wheel Type or Chain Type); | 36.72 | 21.15 | 57.87 |

| TRADE OR OCCUPATION | HOURLY BASIC RATE OF PAY | HOURLY FRINGE BENEFITS | TOTAL |
|---|---|---|---|
| | $ | $ | $ |
| Tube Finisher; Tugger (NOT Performing Work on the Great Lakes); Winches & A- Frames.<br>Future Increase(s): Add $1.25/hr on 6/1/2015; Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017.<br>Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm. | | | |
| Belting, Burlap, Texturing Machine; Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & Light Equipment); Concrete Finishing Machine (Road Type); Environmental Burner; Farm or Industrial Type Tractor; Fireman (Asphalt Plant, Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forklift; Greaser; Hoist (Tugger, Automatic); Jeep Digger; Joint Sawer (Multiple Blade); Launch (NOT Performing Work on the Great Lakes); Lift Slab Machine; Mechanical Float; Mulcher; Power Subgrader; Robotic Tool Carrier (With or Without Attachments); Roller (Rubber Tire, 5 Ton or Under); Self Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or WIthout Attachments); Telehandler; Tining or Curing Machine.<br>Future Increase(s): Add $1.25/hr on 6/1/2015; Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017.<br>Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm. | 36.46 | 21.15 | 57.61 |
| Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Automatic Belt Conveyor & Surge Bin; Boiler (Temporary Heat); Concrete Proportioning Plant; Crusher, Screening or Wash Plant; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Mudjack; Oiler; Prestress Machine; Pug Mill; Pump (3 Inch or Over) or Well Points; Rock, Stone Breaker; Screed (Milling Machine); Stump Chipper; Tank Car Heaters; Vibratory Hammer or Extractor, Power Pack.<br>Future Increase(s): Add $1.25/hr on 6/1/2015; Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017.<br>Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm. | 36.17 | 21.15 | 57.32 |
| Fiber Optic Cable Equipment. | 28.89 | 17.95 | 46.84 |
| Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer. | 41.65 | 21.71 | 63.36 |
| Work Performed on the Great Lakes Including 70 Ton & Over Tug Operator; Assistant Hydraulic Dredge Engineer; Crane or Backhoe Operator; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder. | 41.65 | 21.71 | 63.36 |
| Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or More); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery. | 35.72 | 17.85 | 53.57 |
| Work Performed on the Great Lakes Including Deck Equipment Operator, Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under); Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks-Great Lakes ONLY. | 35.46 | 20.40 | 55.86 |

SUPERSEDES DECISION WI20120010
U. S. DEPARTMENT OF LABOR
(DAVIS-BACON ACT, MINIMUM WAGE RATES)

STATE: Wisconsin
GENERAL DECISION NUMBER: WI150010
DATE: June 26, 2015
DESCRIPTION OF WORK: Highways and Airport Runway and Taxiway Construction

| LABORERS CLASSIFICATION: | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| Group 1: General Laborer; Tree Trimmer; Conduit Layer; Demolition and Wrecking Laborer; Guard Rail, Fence and Bridge Builder; Landscaper, Multiplate Culvert Assembler; Stone Handler; Bituminous Worker (Shoveler, Loader, Utility Man); Batch Truck Dumper; or Cement Handler; Bituminous Worker; (Dumper, Ironer, Smoother, Tamper); Concrete Handler | $27.51 | 19.35 |
| Group 2: Air Tool Operator; Joint Sawer and Filler (Pavement); Vibrator or Tamper Operator (Mechanical Hand Operated); Chain Saw Operator; Demolition Burning Torch Laborer | 27.66 | 19.35 |
| Group 3: Bituminous Worker (Raker and Luteman); Formsetter (Curb, Sidewalk, and Pavement); Strike Off man | 27.86 | 19.35 |
| Group 4: Line and Grade Specialist | 28.01 | 19.35 |
| Group 5: Blaster and Powderman | 28.16 | 19.35 |
| Group 6: Flagperson traffic control person | 24.00 | 19.35 |

CLASSES OF LABORER AND MECHANICS

| | | |
|---|---|---|
| Bricklayer | 35.37 | 18.47 |
| Carpenter | 30.52 | 14.41 |
| Piledriverman | 27.25 | 19.46 |
| Ironworker | 30.77 | 23.96 |
| Cement Mason/Concrete Finisher | 30.69 | 17.53 |
| Electrician | | See Page 3 |
| Line Construction | | |
| Lineman | 40.81 | 32% + 5.00 |
| Heavy Equipment Operator | 38.77 | 32% + 5.00 |
| Equipment Operator | 32.65 | 32% + 5.00 |
| Heavy Groundman Driver | 26.78 | 14.11 |
| Light Groundman Driver | 24.86 | 13.45 |
| Groundsman | 22.45 | 32% + 5.00 |
| Millwrights | 26.32 | 13.98 |
| Painter, Brush | 29.52 | 20.04 |
| Painter, Spray and Sandblaster | 30.27 | 20.04 |
| Painter, Bridge | 29.87 | 20.04 |
| Well Drilling: | | |
| Well Driller | 16.52 | 3.70 |

| Truck Drivers: | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| 1 & 2 Axles | 25.18 | 18.31 |
| Three or More Axles; Euclids, Dumptor & Articulated, Truck Mechanic | 25.38 | 18.31 |

Notes: Welders receive rate prescribed for craft performing operation to which welding is incidental. Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR, 5.5(a)(1)(ii)). Includes Modification #0 dated January 2, 2015; Modification #1 dated January 16, 2015; Modification #2 dated March 20, 2015; Modification #3 dated April 10, 2015; Modification #4 dated May 22, 2015; Modification #5 dated June 12, 2015; Modification #6 dated June 26, 2015.

SUPERSEDES DECISION WI20120010
U. S. DEPARTMENT OF LABOR
(DAVIS-BACON ACT, MINIMUM WAGE RATES)

STATE: Wisconsin
GENERAL DECISION NUMBER: WI150010
DATE: June 26, 2015
DESCRIPTION OF WORK: Highways and Airport Runway and Taxiway Construction

| POWER EQUIPMENT OPERATORS CLASSIFICATION: | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| Group 1: Cranes, tower cranes and derricks, with or without attachments, with a lifting capacity of over 100 tons or cranes, tower cranes and derricks with boom, leads and/or jib lengths measuring 176 feet or longer | $38.27 | $21.55 |
| Group 2: Cranes, tower cranes and derricks, with or without attachments, with a lifting capacity of 100 tons or less or cranes, tower cranes and derricks with boom, leads and/or jib lengths measuring 175 feet or less, and backhoes (excavators) having a manufacturer's rated capacity of 3 cu. yds. and over, caisson rigs, pile driver, dredge operator, dredge engineer. | $37.77 | $21.55 |
| Group 3: Mechanic or welder - heavy duty equipment, cranes with a lifting capacity of 25 tons or less, concrete breaker (manual or remote); vibrator/sonic concrete breaker; concrete laser screed; concrete slipform paver; concrete batch plant operator; concrete pavement spreader - heavy duty (rubber tired); concrete spreader and distributor, automatic subgrader (concrete); concrete grinder and planing machine; concrete slipform curb and gutter machine; slipform concrete placer; tube finisher; hydro blaster (10,000 psi and over); bridge paver; concrete conveyor system; concrete pump; stabilizing mixer (self propelled); shoulder widener; asphalt plant engineer; bituminous paver; bump cutter and grooving machine; milling machine; screed (bituminous paver); asphalt heater, planer and scarifier; backhoes (excavators) having a manufacturers rated capacity of under 3 cu. yds.; grader or motor patrol; tractor (scraper, dozer, pusher, loader); scraper - rubber tired (single or twin engine); endloader hydraulic backhoe (tractor-type); trenching machine; skid rigs; tractor, side boom (heavy); drilling or boring machine (mechanical heavy); roller (over 5 tons); percussion or rotary drilling machine; air track; blaster; loading machine (conveyor); tugger; boatmen; winches and A-frames; post driver; material hoist operator. | $37.27 | $21.55 |
| Group 4: Greaser, roller steel (5 tons or less); roller (pneumatic tired) - self-propelled; tractor (mounted or towed compactors and light equipment); shouldering machine; self-propelled chip spreader; concrete spreader; finishing machine; mechanical float; curing machine; power subgrader; joint saw (multiple blade) belting machine; burlap machine; texturing machine; tractor, endloader (rubber tired) - light; jeep digger; fork lift; mulcher; launch operator; fireman; environmental burner. | $37.01 | $21.55 |
| Group 5: Air compressor; power pack; vibratory hammer and extractor; heavy equipment, leadman; tank car heaters; stump chipper; curb machine operator; concrete pro-portioning plants generators; mudjack operator; rock breaker; crusher or screening plant; screed (milling machine); automatic belt conveyor and surge bin; pug mill operator; oiler; pump (over 3 inches); drilling machine helper. | $36.72 | $21.55 |
| Group 6: Off – road material hauler with or without ejector | $30.82 | $21.55 |

Premium Pay:
EPA Level “A” protection - $3.00 per hour
EPA Level “B” protection - $2.00 per hour
EPA Level “C” protection - $1.00 per hours

SUPERSEDES DECISION WI20120010
U. S. DEPARTMENT OF LABOR
(DAVIS-BACON ACT, MINIMUM WAGE RATES)

STATE: Wisconsin
GENERAL DECISION NUMBER: WI150010
DATE: June 26, 2015
DESCRIPTION OF WORK: Highways and Airport Runway and Taxiway Construction

| LABORERS CLASSIFICATION: | Rates | Benefits |
|---|---|---|
| Electricians | | |
| Area 1 | $29.00 | 26.5%+ 9.15 |
| Area 2: | | |
| Electricians | 30.59 | 18.43 |
| Area 3: | | |
| Electrical contracts under $130,000 | 26.24 | 16.85 |
| Electrical contracts over $130,000 | 29.41 | 16.97 |
| Area 4: | 29.32 | 28.50% + 9.27 |
| Area 5 | 28.96 | 24.85% + 9.70 |
| Area 6 | 35.25 | 19.30 |
| Area 8 | | |
| Electricians | 31.30 | 24.93% + 10.40 |
| Area 9: | | |
| Electricians | 34.82 | 19.575 |
| Area 10 | 29.64 | 20.54 |
| Area 11 | 32.54 | 24.07 |
| Area 12 | 32.87 | 19.23 |
| Area 13 | 33.93 | 22.67 |
| Teledata System Installer | | |
| Area 14 | | |
| Installer/Technician | 22.50 | 12.72 |
| Sound & Communications | | |
| Area 15 | | |
| Installer | 16.47 | 14.84 |
| Technician | 26.00 | 17.70 |

Area 1 - CALUMET (except township of New Holstein), GREEN LAKE (N. part, including Townships of Berlin, St. Marie and Seneca), MARQUETTE (N. part, including Townships of Crystal Lake, Neshkoro, Newton & Springfield), OUTAGAMIE, WAUPACA, WAUSHARA and WINNEBAGO COUNTIES.

Area 2 - ASHLAND, BARRON, BAYFIELD, BUFFALO, BURNETT, CHIPPEWA, CLARK (except Mayville, Colby, Unity, Sherman, Fremont, Lynn and Sherwood), CRAWFORD, DUNN, EAU CLAIRE, GRANT, IRON, JACKSON, LA CROSSE, MONROE, PEPIN, PIERCE, POLK, PRICE, RICHLAND, RUSK, ST. CROIX, SAWYER, TAYLOR, TREMPEALEAU, VERNON and WASHBURN COUNTIES

Area 3 - FLORENCE (townships of Aurora, Commonwealth, Fern, Florence and Homestead), MARINETTE (Niagara township)

Area 4 - BROWN, DOOR, KEWAUNEE, MANITOWOC (except Schleswig), MARINETTE (Wausauke and area south thereof), OCONTO, MENOMINEE (East of a line 6 miles West of the West boundary of Oconto County), SHAWANO (except area North of Townships of Aniwa and Hutchins) COUNTIES.

Area 5 - ADAMS, CLARK (Colby, Freemont, Lynn, Mayville, Sherman, Sherwood, Unity), FOREST, JUNEAU, LANGLADE, LINCOLN, MARATHON, MARINETTE (Area North of the town of Wausaukee), MENOMINEE (Area West of a line 6 miles West of the West boundary of Oconto County), ONEIDA, PORTAGE, SHAWANO (Area North of the townships of Aniwa and Hutchins), VILAS AND WOOD COUNTIES

Area 6 - KENOSHA COUNTY

Area 8 - DODGE, (Emmet Township only), GREEN, JEFFERSON, LAFAYETTE, RACINE (Burlington township), ROCK and WALWORTH COUNTIES

Area 9 - COLUMBIA, DANE, DODGE, (area west of Hwy. 26, except Chester & Emmet Townships), GREEN LAKE (except townships of Berlin, Seneca and St. Marie), IOWA, MARQUETTE (except townships of Neshkoka, Crystal Lake, Newton and Springfield), and SAUK COUNTIES

Area 10 - CALUMET (Township of New Holstein), DODGE (East of Hwy. 26 including Chester Township), FOND DU LAC, MANITOWOC (Schleswig), and SHEBOYGAN COUNTIES

Area 11 - DOUGLAS COUNTY

Area 12 - RACINE (except Burlington township) COUNTY

Area 13 - MILWAUKEE, OZAUKEE, WASHINGTON and WAUKESHA COUNTIES

Area 14 - Statewide.

Area 15 - DODGE (East of Hwy 26 including Chester Twp, excluding Emmet Twp), FOND DU LAC (Except Waupun), MILWAUKEE, OZAUKEE, MANITOWOC (Schleswig), WASHINGTON, AND WAUKESHA COUNTIES.

**FEBRUARY 1999**

## NOTICE TO BIDDERS
## WAGE RATE DECISION

The wage rate decision of the Secretary of Labor which has been incorporated in these advertised specifications is incomplete in that the classifications may be omitted from the Secretary of Labor's decision.

Since the bidder is responsible, independently, for ascertaining area practice with respect to the necessity, or lack of necessity, for the use of these classifications in the prosecution of the work contemplated by this project, no inference may be drawn from the omision of these classifications concerning prevailing area practices relative to their use. Further, this omission will not, per se, be construed as establishing any governmental liability for increased labor cost if it is subsequently determined that such classifications are required.

There may be omissions and/or errors in the federal wage rates. The bidder is responsible for evaluating and determining the correct applicable rate. The higher of state or federal rate will apply.

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| | **SECTION 0001 Roadway Items** | | | | | |
| 0001 | 108.3100.S Incentive/Disincentive for Interim Completion of Work 0003. Ramp NE | 0.100 CD | 10000.00000 | | 1000.00 | |
| 0002 | 108.4400 CPM Progress Schedule | 1.000 EACH | . | | . | |
| 0003 | 201.0105 Clearing | 336.000 STA | . | | . | |
| 0004 | 201.0120 Clearing | 528.000 ID | . | | . | |
| 0005 | 201.0205 Grubbing | 336.000 STA | . | | . | |
| 0006 | 201.0220 Grubbing | 528.000 ID | . | | . | |
| 0007 | 203.0200 Removing Old Structure (station) 0001. 591WS+30 | LUMP | LUMP | | . | |
| 0008 | 203.0200 Removing Old Structure (station) 0002. 175HA+52.38 | LUMP | LUMP | | . | |
| 0009 | 203.0200 Removing Old Structure (station) 0003. 285NS+50 | LUMP | LUMP | | . | |

SCHEDULE OF ITEMS REVISED:

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0010 | 203.0200 Removing Old Structure (station) 0004. 600ES+80 | LUMP | LUMP | | | . |
| 0011 | 203.0200 Removing Old Structure (station) 0005. 589ES+60 | LUMP | LUMP | | | . |
| 0012 | 203.0200 Removing Old Structure (station) 0006. 296NS+00 | LUMP | LUMP | | | . |
| 0013 | 203.0200 Removing Old Structure (station) 0007. 128EW+41 | LUMP | LUMP | | | . |
| 0014 | 203.0200 Removing Old Structure (station) 0008. 127EW+00 | LUMP | LUMP | | | . |
| 0015 | 203.0200 Removing Old Structure (station) 0009. 112EW+25 | LUMP | LUMP | | | . |
| 0016 | 203.0200 Removing Old Structure (station) 0010. 112EW+24 | LUMP | LUMP | | | . |
| 0017 | 203.0200 Removing Old Structure (station) 0011. 229NS+80 | LUMP | LUMP | | | . |
| 0018 | 203.0200 Removing Old Structure (station) 0012. 229NS+90 | LUMP | LUMP | | | . |
| 0019 | 203.0200 Removing Old Structure (station) 0015. 592SE+50 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0020 | 203.0200 Removing Old Structure (station) 0016. 545NE+50 | LUMP | LUMP | | | . |
| 0021 | 203.0200 Removing Old Structure (station) 0017. 591ES+22 | LUMP | LUMP | | | . |
| 0022 | 203.0200 Removing Old Structure (station) 0018. 596ES+71 | LUMP | LUMP | | | . |
| 0023 | 203.0200 Removing Old Structure (station) 0019. 786GE+00 | LUMP | LUMP | | | . |
| 0024 | 203.0200 Removing Old Structure (station) 0020. 16+00 | LUMP | LUMP | | | . |
| 0025 | 203.0200 Removing Old Structure (station) 0021. 236NS+00 | LUMP | LUMP | | | . |
| 0026 | 203.0200 Removing Old Structure (station) 0022. 252NS+65 | LUMP | LUMP | | | . |
| 0027 | 203.0200 Removing Old Structure (station) 0023. 253NS+50 | LUMP | LUMP | | | . |
| 0028 | 203.0200 Removing Old Structure (station) 0024. 180HA+50 | LUMP | LUMP | | | . |
| 0029 | 203.0200 Removing Old Structure (station) 0025. 155EW+50 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0030 | 203.0200 Removing Old Structure (station) 0026. 159EW+00 | LUMP | LUMP | | | . |
| 0031 | 203.0200 Removing Old Structure (station) 0027. 556NE+00 | LUMP | LUMP | | | . |
| 0032 | 203.0200 Removing Old Structure (station) 0028. 734BA+50 | LUMP | LUMP | | | . |
| 0033 | 203.0200 Removing Old Structure (station) 0029. 345NS+00 | LUMP | LUMP | | | . |
| 0034 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0001. B-40-101 | LUMP | LUMP | | | . |
| 0035 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0002. B-40-0112 | LUMP | LUMP | | | . |
| 0036 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0003. B-40-0126 | LUMP | LUMP | | | . |
| 0037 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0004. B-40-0127 | LUMP | LUMP | | | . |
| 0038 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0005. B-40-0143 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0039 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0006. B-40-0144 | LUMP | LUMP | | | . |
| 0040 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0007. B-40-94 | LUMP | LUMP | | | . |
| 0041 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0008. B-40-0096 | LUMP | LUMP | | | . |
| 0042 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0009. B-40-0097 | LUMP | LUMP | | | . |
| 0043 | 203.0225.S Debris Containment (structure) 0001. B-40-0126 | LUMP | LUMP | | | . |
| 0044 | 203.0225.S Debris Containment (structure) 0002. B-40-0127 | LUMP | LUMP | | | . |
| 0045 | 203.0600.S Removing Old Structure Over Waterway With Minimal Debris (station) 0001. 100EW+77 | LUMP | LUMP | | | . |
| 0046 | 203.0600.S Removing Old Structure Over Waterway With Minimal Debris (station) 0002. 100EW+80 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0047 | 204.0100 Removing Pavement **P** | 271,595.000 SY | | . | | . |
| 0048 | 204.0109.S Removing Concrete Surface Partial Depth **P** | 7,771.000 SF | | . | | . |
| 0049 | 204.0110 Removing Asphaltic Surface **P** | 70,771.000 SY | | . | | . |
| 0050 | 204.0120 Removing Asphaltic Surface Milling **P** | 31,419.000 SY | | . | | . |
| 0051 | 204.0150 Removing Curb & Gutter **P** | 7,078.000 LF | | . | | . |
| 0052 | 204.0155 Removing Concrete Sidewalk **P** | 1,217.000 SY | | . | | . |
| 0053 | 204.0157 Removing Concrete Barrier **P** | 38,677.000 LF | | . | | . |
| 0054 | 204.0165 Removing Guardrail **P** | 5,614.000 LF | | . | | . |
| 0055 | 204.0170 Removing Fence **P** | 34,114.000 LF | | . | | . |
| 0056 | 204.0195 Removing Concrete Bases | 140.000 EACH | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0057 | 204.0210 Removing Manholes | 91.000 EACH | | . | | . |
| 0058 | 204.0220 Removing Inlets | 565.000 EACH | | . | | . |
| 0059 | 204.0245 Removing Storm Sewer (size) 0001. 12-Inch | 17,857.000 LF | | . | | . |
| 0060 | 204.0245 Removing Storm Sewer (size) 0002. 15-Inch | 4,058.000 LF | | . | | . |
| 0061 | 204.0245 Removing Storm Sewer (size) 0003. 18-Inch | 2,125.000 LF | | . | | . |
| 0062 | 204.0245 Removing Storm Sewer (size) 0004. 21-Inch | 1,913.000 LF | | . | | . |
| 0063 | 204.0245 Removing Storm Sewer (size) 0005. 24-Inch | 508.000 LF | | . | | . |
| 0064 | 204.0245 Removing Storm Sewer (size) 0006. 27-Inch | 870.000 LF | | . | | . |
| 0065 | 204.0245 Removing Storm Sewer (size) 0007. 30-Inch | 1,241.000 LF | | . | | . |
| 0066 | 204.0245 Removing Storm Sewer (size) 0008. 42-Inch | 195.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0067 | 204.0245 Removing Storm Sewer (size) 0009. 48-Inch | 1,790.000 LF | | . | | . |
| 0068 | 204.0245 Removing Storm Sewer (size) 0010. 54-Inch | 1,853.000 LF | | . | | . |
| 0069 | 204.0245 Removing Storm Sewer (size) 0011. 60-Inch | 124.000 LF | | . | | . |
| 0070 | 204.0245 Removing Storm Sewer (size) 0015. 96-Inch | 98.000 LF | | . | | . |
| 0071 | 204.0250 Abandoning Manholes | 2.000 EACH | | . | | . |
| 0072 | 204.0280 Sealing Pipes | 87.000 EACH | | . | | . |
| 0073 | 204.0291.S Abandoning Sewer | 636.000 CY | | . | | . |
| 0074 | 204.9060.S Removing (item description) 0002. Apron Endwall | 9.000 EACH | | . | | . |
| 0075 | 204.9090.S Removing (item description) 0001. Noise Barrier | 4,759.000 LF | | . | | . |
| 0076 | 204.9090.S Removing (item description) 0005. Drain Slotted Vane | 566.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0077 | 205.0100 Excavation Common **P** | 1,080,149 CY | | . | | . |
| 0078 | 206.1000 Excavation for Structures Bridges (structure) 0002. B-40-787 | LUMP | LUMP | | | . |
| 0079 | 206.1000 Excavation for Structures Bridges (structure) 0003. B-40-788 | LUMP | LUMP | | | . |
| 0080 | 206.1000 Excavation for Structures Bridges (structure) 0004. B-40-790 | LUMP | LUMP | | | . |
| 0081 | 206.1000 Excavation for Structures Bridges (structure) 0005. B-40-795 | LUMP | LUMP | | | . |
| 0082 | 206.1000 Excavation for Structures Bridges (structure) 0006. B-40-796 | LUMP | LUMP | | | . |
| 0083 | 206.1000 Excavation for Structures Bridges (structure) 0007. B-40-797 | LUMP | LUMP | | | . |
| 0084 | 206.1000 Excavation for Structures Bridges (structure) 0008. B-40-851 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0085 | 206.1000 Excavation for Structures Bridges (structure) 0012. B-40-858 | LUMP | LUMP | | | . |
| 0086 | 206.1000 Excavation for Structures Bridges (structure) 0013. B-40-859 | LUMP | LUMP | | | . |
| 0087 | 206.1000 Excavation for Structures Bridges (structure) 0014. B-40-860 | LUMP | LUMP | | | . |
| 0088 | 206.1000 Excavation for Structures Bridges (structure) 0015. B-40-861 | LUMP | LUMP | | | . |
| 0089 | 206.1000 Excavation for Structures Bridges (structure) 0016. B-40-867 | LUMP | LUMP | | | . |
| 0090 | 206.1000 Excavation for Structures Bridges (structure) 0017. B-40-869 | LUMP | LUMP | | | . |
| 0091 | 206.1000 Excavation for Structures Bridges (structure) 0018. B-40-870 | LUMP | LUMP | | | . |
| 0092 | 206.1000 Excavation for Structures Bridges (structure) 0019. B-40-871 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0093 | 206.1000 Excavation for Structures Bridges (structure) 0020. B-40-872 | LUMP | LUMP | | | . |
| 0094 | 206.1000 Excavation for Structures Bridges (structure) 0021. B-40-873 | LUMP | LUMP | | | . |
| 0095 | 206.1000 Excavation for Structures Bridges (structure) 0022. B-40-874 | LUMP | LUMP | | | . |
| 0096 | 206.1000 Excavation for Structures Bridges (structure) 0023. B-40-882 | LUMP | LUMP | | | . |
| 0097 | 206.1000 Excavation for Structures Bridges (structure) 0024. B-40-883 | LUMP | LUMP | | | . |
| 0098 | 206.3000 Excavation for Structures Retaining Walls (structure) 0001. R-40-467 | LUMP | LUMP | | | . |
| 0099 | 206.3000 Excavation for Structures Retaining Walls (structure) 0002. R-40-468 | LUMP | LUMP | | | . |
| 0100 | 206.3000 Excavation for Structures Retaining Walls (structure) 0003. R-40-516 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0101 | 206.3000 Excavation for Structures Retaining Walls (structure) 0004. R-40-557 | LUMP | LUMP | | | . |
| 0102 | 206.3000 Excavation for Structures Retaining Walls (structure) 0005. R-40-630 | LUMP | LUMP | | | . |
| 0103 | 206.3000 Excavation for Structures Retaining Walls (structure) 0006. R-40-631 | LUMP | LUMP | | | . |
| 0104 | 206.3000 Excavation for Structures Retaining Walls (structure) 0007. R-40-655 | LUMP | LUMP | | | . |
| 0105 | 209.0100 Backfill Granular | 10,157.000 CY | | . | | . |
| 0106 | 209.0200.S Backfill Controlled Low Strength | 8,743.000 CY | | . | | . |
| 0107 | 210.0100 Backfill Structure **P** | 21,152.000 CY | | . | | . |
| 0108 | 305.0110 Base Aggregate Dense 3/4-Inch | 903.000 TON | | . | | . |
| 0109 | 305.0120 Base Aggregate Dense 1 1/4-Inch **P** | 271,829.000 TON | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0110 | 305.0135 Base Aggregate Dense 3-Inch | 389.000 CY | | . | | . |
| 0111 | 310.0115 Base Aggregate Open Graded | 2,465.000 CY | | . | | . |
| 0112 | 312.0115 Select Crushed Material **P** | 258,312.000 CY | | . | | . |
| 0113 | 390.0103 Base Patching | 1,800.000 SY | | . | | . |
| 0114 | 415.0070 Concrete Pavement 7-Inch **P** | 231.000 SY | | . | | . |
| 0115 | 415.0080 Concrete Pavement 8-Inch **P** | 7,430.000 SY | | . | | . |
| 0116 | 415.0085 Concrete Pavement 8 1/2-Inch **P** | 9,052.000 SY | | . | | . |
| 0117 | 415.0090 Concrete Pavement 9-Inch **P** | 67,747.000 SY | | . | | . |
| 0118 | 415.0095 Concrete Pavement 9 1/2-Inch **P** | 16,285.000 SY | | . | | . |
| 0119 | 415.0210 Concrete Pavement Gaps | 12.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0120 | 415.0410 Concrete Pavement Approach Slab **P** | 9,380.000 SY | . | | . | |
| 0121 | 416.0270 Concrete Driveway HES 7-Inch | 534.000 SY | . | | . | |
| 0122 | 416.0280 Concrete Driveway HES 8-Inch | 48.000 SY | . | | . | |
| 0123 | 416.0610 Drilled Tie Bars | 2,023.000 EACH | . | | . | |
| 0124 | 416.0620 Drilled Dowel Bars | 2,343.000 EACH | . | | . | |
| 0125 | 440.4410.S Incentive IRI Ride | 98,242.000 DOL | 1.00000 | | 98242.00 | |
| 0126 | 440.5020 Incentive IRI Ride Bridge | 92,684.800 DOL | 1.00000 | | 92684.80 | |
| 0127 | 455.0105 Asphaltic Material PG58-28 | 136.000 TON | . | | . | |
| 0128 | 455.0120 Asphaltic Material PG64-28 | 1,151.000 TON | . | | . | |
| 0129 | 455.0140 Asphaltic Material PG64-28P | 41.000 TON | . | | . | |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0130 | 455.0150 Asphaltic Material PG70-28P | 676.000 TON | | . | | . |
| 0131 | 455.0605 Tack Coat | 5,352.000 GAL | | . | | . |
| 0132 | 460.1101 HMA Pavement Type E-1 | 145.000 TON | | . | | . |
| 0133 | 460.1110 HMA Pavement Type E-10 | 2,260.000 TON | | . | | . |
| 0134 | 460.1130 HMA Pavement Type E-30 | 24,461.000 TON | | . | | . |
| 0135 | 460.1700 HMA Pavement Type SMA | 695.000 TON | | . | | . |
| 0136 | 460.2000 Incentive Density HMA Pavement | 17,639.000 DOL | 1.00000 | | 17639.00 | |
| 0137 | 460.4000 HMA Cold Weather Paving | 1,001.000 TON | | . | | . |
| 0138 | 465.0105 Asphaltic Surface | 2,521.000 TON | | . | | . |
| 0139 | 465.0120 Asphaltic Surface Driveways and Field Entrances | 8.000 TON | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0140 | 465.0125 Asphaltic Surface Temporary | 14,869.000 TON | | . | | . |
| 0141 | 465.0310 Asphaltic Curb | 646.000 LF | | . | | . |
| 0142 | 502.0100 Concrete Masonry Bridges **P** | 11,618.000 CY | | . | | . |
| 0143 | 502.3100 Expansion Device (structure) 0001. B-40-861 | LUMP | LUMP | | | . |
| 0144 | 502.3100 Expansion Device (structure) 0002. B-40-869 | LUMP | LUMP | | | . |
| 0145 | 502.3100 Expansion Device (structure) 0003. B-40-870 | LUMP | LUMP | | | . |
| 0146 | 502.3200 Protective Surface Treatment **P** | 95,242.000 SY | | . | | . |
| 0147 | 502.5005 Masonry Anchors Type L No. 5 Bars | 98.000 EACH | | . | | . |
| 0148 | 502.5010 Masonry Anchors Type L No. 6 Bars | 28.000 EACH | | . | | . |
| 0149 | 502.6102 Masonry Anchors Type S 1/2-Inch | 35.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0150 | 503.0137 Prestressed Girder Type I 36W-Inch **P** | 3,091.000 LF | | . | | . |
| 0151 | 503.0146 Prestressed Girder Type I 45W-Inch **P** | 3,778.000 LF | | . | | . |
| 0152 | 503.0155 Prestressed Girder Type I 54W-Inch **P** | 29,077.000 LF | | . | | . |
| 0153 | 503.0172 Prestressed Girder Type I 72W-Inch **P** | 1,313.000 LF | | . | | . |
| 0154 | 504.0500 Concrete Masonry Retaining Walls **P** | 11,126.000 CY | | . | | . |
| 0155 | 505.0405 Bar Steel Reinforcement HS Bridges | 310,651.000 LB | | . | | . |
| 0156 | 505.0415 Bar Steel Reinforcement HS Retaining Walls | 180,065.000 LB | | . | | . |
| 0157 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 4,730,556 LB | | . | | . |
| 0158 | 505.0615 Bar Steel Reinforcement HS Coated Retaining Walls | 1,211,960 LB | | . | | . |
| 0159 | 505.0800.S Bar Steel Reinforcement HS Stainless Structures | 4,029,390 LB | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0160 | 505.0905 Bar Couplers No. 5 | 18.000 EACH | | . | | . |
| 0161 | 505.0906 Bar Couplers No. 6 | 1,032.000 EACH | | . | | . |
| 0162 | 505.0909 Bar Couplers No. 9 | 44.000 EACH | | . | | . |
| 0163 | 505.0910 Bar Couplers No. 10 | 52.000 EACH | | . | | . |
| 0164 | 506.0605 Structural Steel HS **P** | 20,031,692 LB | | . | | . |
| 0165 | 506.2605 Bearing Pads Elastomeric Non-Laminated **P** | 526.000 EACH | | . | | . |
| 0166 | 506.2610 Bearing Pads Elastomeric Laminated **P** | 116.000 EACH | | . | | . |
| 0167 | 506.3010 Welded Stud Shear Connectors 7/8x5-Inch **P** | 3,768.000 EACH | | . | | . |
| 0168 | 506.3015 Welded Stud Shear Connectors 7/8x6-Inch **P** | 75,088.000 EACH | | . | | . |
| 0169 | 506.3020 Welded Stud Shear Connectors 7/8x7-Inch **P** | 3,450.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0170 | 506.3025 Welded Stud Shear Connectors 7/8x8-Inch **P** | 30,186.000 EACH | | . | | . |
| 0171 | 506.3030 Welded Stud Shear Connectors 7/8x9-Inch **P** | 15,180.000 EACH | | . | | . |
| 0172 | 506.4000 Steel Diaphragms (structure) 0001. B-40-788 **P** | 18.000 EACH | | . | | . |
| 0173 | 506.4000 Steel Diaphragms (structure) 0002. B-40-790 **P** | 44.000 EACH | | . | | . |
| 0174 | 506.4000 Steel Diaphragms (structure) 0003. B-40-795 **P** | 3.000 EACH | | . | | . |
| 0175 | 506.4000 Steel Diaphragms (structure) 0004. B-40-796 **P** | 8.000 EACH | | . | | . |
| 0176 | 506.4000 Steel Diaphragms (structure) 0005. B-40-797 **P** | 6.000 EACH | | . | | . |
| 0177 | 506.4000 Steel Diaphragms (structure) 0006. B-40-850 **P** | 21.000 EACH | | . | | . |
| 0178 | 506.4000 Steel Diaphragms (structure) 0007. B-40-851 **P** | 18.000 EACH | | . | | . |
| 0179 | 506.4000 Steel Diaphragms (structure) 0008. B-40-858 **P** | 26.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0180 | 506.4000 Steel Diaphragms (structure) 0009. B-40-859 **P** | 8.000 EACH | | . | | . |
| 0181 | 506.4000 Steel Diaphragms (structure) 0010. B-40-860 **P** | 6.000 EACH | | . | | . |
| 0182 | 506.4000 Steel Diaphragms (structure) 0011. B-40-867 **P** | 36.000 EACH | | . | | . |
| 0183 | 506.4000 Steel Diaphragms (structure) 0012. B-40-869 **P** | 78.000 EACH | | . | | . |
| 0184 | 506.4000 Steel Diaphragms (structure) 0013. B-40-870 **P** | 84.000 EACH | | . | | . |
| 0185 | 506.4000 Steel Diaphragms (structure) 0014. B-40-871 **P** | 28.000 EACH | | . | | . |
| 0186 | 506.4000 Steel Diaphragms (structure) 0015. B-40-872 **P** | 26.000 EACH | | . | | . |
| 0187 | 506.4000 Steel Diaphragms (structure) 0016. B-40-873 **P** | 52.000 EACH | | . | | . |
| 0188 | 506.4000 Steel Diaphragms (structure) 0017. B-40-874 **P** | 52.000 EACH | | . | | . |
| 0189 | 506.4000 Steel Diaphragms (structure) 0018. B-40-882 **P** | 36.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0190 | 506.4000 Steel Diaphragms (structure) 0019. B-40-883 **P** | 32.000 EACH | | . | | . |
| 0191 | 506.5000 Bearing Assemblies Fixed (structure) 0001. B-40-869 | 28.000 EACH | | . | | . |
| 0192 | 506.5000 Bearing Assemblies Fixed (structure) 0002. B-40-870 | 30.000 EACH | | . | | . |
| 0193 | 506.6000 Bearing Assemblies Expansion (structure) 0001. B-40-787 | 27.000 EACH | | . | | . |
| 0194 | 509.1000 Joint Repair | 80.000 SY | | . | | . |
| 0195 | 511.1200 Temporary Shoring (structure) 0004. B-40-869 | 565.000 SF | | . | | . |
| 0196 | 511.1200 Temporary Shoring (structure) 0005. B-40-870 | 4,430.000 SF | | . | | . |
| 0197 | 511.1200 Temporary Shoring (structure) 0007. R-40-532 | 1,991.000 SF | | . | | . |
| 0198 | 511.1200 Temporary Shoring (structure) 0008. R-40-534 | 4,914.000 SF | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0199 | 511.1200 Temporary Shoring (structure) 0009. R-40-540 | 450.000 SF | | . | | . |
| 0200 | 511.1200 Temporary Shoring (structure) 0010. R-40-545 | 270.000 SF | | . | | . |
| 0201 | 511.1200 Temporary Shoring (structure) 0014. B-40-872 | 250.000 SF | | . | | . |
| 0202 | 511.1200 Temporary Shoring (structure) 0016. B-40-851 | 1,890.000 SF | | . | | . |
| 0203 | 511.1200 Temporary Shoring (structure) 0017. B-40-873 | 200.000 SF | | . | | . |
| 0204 | 511.1200 Temporary Shoring (structure) 0018. B-40-874 | 1,900.000 SF | | . | | . |
| 0205 | 511.1200 Temporary Shoring (structure) 0019. R-40-630 | 1,825.000 SF | | . | | . |
| 0206 | 511.1200 Temporary Shoring (structure) 0020. R-40-524 | 640.000 SF | | . | | . |
| 0207 | 511.1200 Temporary Shoring (structure) 0021. R-40-467 | 1,425.000 SF | | . | | . |
| 0208 | 511.1200 Temporary Shoring (structure) 0022. R-40-468 | 440.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0209 | 511.1200 Temporary Shoring (structure) 0023. R-40-522 | 1,340.000 SF | | . | | . |
| 0210 | 511.1300 Temporary Shoring (location) 0001. 217NS+00 To 228NS+57 | 4,921.000 SF | | . | | . |
| 0211 | 511.1300 Temporary Shoring (location) 0002. 275NS+26 To 275NS+51 | 330.000 SF | | . | | . |
| 0212 | 511.1300 Temporary Shoring (location) 0003. 230NS+97 To 238NS+00 | 3,360.000 SF | | . | | . |
| 0213 | 511.1300 Temporary Shoring (location) 0004. 93EW+60 To 99EW+20 | 1,357.000 SF | | . | | . |
| 0214 | 511.1300 Temporary Shoring (location) 0005. 102EW+37 To 107EW+30 | 1,362.000 SF | | . | | . |
| 0215 | 511.1300 Temporary Shoring (location) 0006. 110EW+20 To 111EW+25 | 175.000 SF | | . | | . |
| 0216 | 511.1300 Temporary Shoring (location) 0007. 142EW+68 To 143EW+18 | 1,300.000 SF | | . | | . |
| 0217 | 511.1300 Temporary Shoring (location) 0008. 203EW+84 To 204EW+03 | 540.000 SF | | . | | . |
| 0218 | 511.1300 Temporary Shoring (location) 0009. 16EWP+00 To 16EWP+84 | 348.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0219 | 511.1300 Temporary Shoring (location) 0010. 169EW+85 To 180EW+35 | 5,593.000 SF | | . | | . |
| 0220 | 511.1300 Temporary Shoring (location) 0011. 13ENA+96 To 14ENA+80 | 369.000 SF | | . | | . |
| 0221 | 511.1300 Temporary Shoring (location) 0012. 15ENA+96 To 16ENA+61 | 330.000 SF | | . | | . |
| 0222 | 511.1300 Temporary Shoring (location) 0013. 267NS+00 To 267NS+10 | 60.000 SF | | . | | . |
| 0223 | 511.1300 Temporary Shoring (location) 0014. 269NS+54 To 269NS+64 | 80.000 SF | | . | | . |
| 0224 | 511.1300 Temporary Shoring (location) 0015. 291NS+08 To 291NS+73 | 780.000 SF | | . | | . |
| 0225 | 511.1300 Temporary Shoring (location) 0016. 104EW+94 To 105EW+09 | 105.000 SF | | . | | . |
| 0226 | 511.1300 Temporary Shoring (location) 0017. 148EW+97 To 149EW+07 | 60.000 SF | | . | | . |
| 0227 | 511.1300 Temporary Shoring (location) 0018. 797FC+00 To 798FC+25 | 1,875.000 SF | | . | | . |
| 0228 | 511.2200 Temporary Shoring Left in Place (structure) 0001. R-40-525 | 1,130.000 SF | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0229 | 512.0500 Piling Steel Sheet Permanent Delivered | 1,600.000 SF | | . | | . |
| 0230 | 512.0600 Piling Steel Sheet Permanent Driven | 1,600.000 SF | | . | | . |
| 0231 | 513.2000 Railing Pipe (structure) 0001. B-40-858 | LUMP | LUMP | | | . |
| 0232 | 513.2000 Railing Pipe (structure) 0002. R-40-467 | LUMP | LUMP | | | . |
| 0233 | 513.2000 Railing Pipe (structure) 0003. R-40-469 | LUMP | LUMP | | | . |
| 0234 | 513.2000 Railing Pipe (structure) 0004. R-40-498 | LUMP | LUMP | | | . |
| 0235 | 513.2000 Railing Pipe (structure) 0005. R-40-507 | LUMP | LUMP | | | . |
| 0236 | 513.2000 Railing Pipe (structure) 0006. R-40-509 | LUMP | LUMP | | | . |
| 0237 | 513.2000 Railing Pipe (structure) 0007. R-40-511 | LUMP | LUMP | | | . |
| 0238 | 513.2000 Railing Pipe (structure) 0008. R-40-516 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0239 | 513.2000 Railing Pipe (structure) 0009. R-40-518 | LUMP | LUMP | | | . |
| 0240 | 513.2000 Railing Pipe (structure) 0010. R-40-522 | LUMP | LUMP | | | . |
| 0241 | 513.2000 Railing Pipe (structure) 0011. R-40-524 | LUMP | LUMP | | | . |
| 0242 | 513.2000 Railing Pipe (structure) 0012. R-40-525 | LUMP | LUMP | | | . |
| 0243 | 513.2000 Railing Pipe (structure) 0013. R-40-540 | LUMP | LUMP | | | . |
| 0244 | 513.2000 Railing Pipe (structure) 0014. R-40-545 | LUMP | LUMP | | | . |
| 0245 | 513.2000 Railing Pipe (structure) 0015. R-40-557 | LUMP | LUMP | | | . |
| 0246 | 513.2000 Railing Pipe (structure) 0016. R-40-558 | LUMP | LUMP | | | . |
| 0247 | 513.2000 Railing Pipe (structure) 0017. R-40-559 | LUMP | LUMP | | | . |
| 0248 | 513.2000 Railing Pipe (structure) 0018. B-40-797 | LUMP | LUMP | | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0249 | 513.2000 Railing Pipe (structure) 0019. R-40-655 | LUMP | LUMP | | | . |
| 0250 | 514.0450 Floor Drains Type WF | 5.000 EACH | | . | | . |
| 0251 | 514.2608 Downspout 8-Inch **P** | 2,441.000 LF | | . | | . |
| 0252 | 516.0100 Dampproofing **P** | 5,254.000 SY | | . | | . |
| 0253 | 516.0500 Rubberized Membrane Waterproofing **P** | 3,857.000 SY | | . | | . |
| 0254 | 517.0600 Painting Epoxy System (structure) 0001. B-40-787 | LUMP | LUMP | | | . |
| 0255 | 517.0600 Painting Epoxy System (structure) 0002. B-40-861 | LUMP | LUMP | | | . |
| 0256 | 517.0600 Painting Epoxy System (structure) 0003. R-40-468 | LUMP | LUMP | | | . |
| 0257 | 517.0600 Painting Epoxy System (structure) 0004. R-40-516 | LUMP | LUMP | | | . |
| 0258 | 517.0600 Painting Epoxy System (structure) 0005. R-40-631 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0259 | 517.0600 Painting Epoxy System (structure) 0006. R-40-655 | LUMP | LUMP | | | . |
| 0260 | 517.0650.S Painting Polysiloxane System (structure) 0001. B-40-786 | LUMP | LUMP | | | . |
| 0261 | 517.0650.S Painting Polysiloxane System (structure) 0002. B-40-853 | LUMP | LUMP | | | . |
| 0262 | 517.0650.S Painting Polysiloxane System (structure) 0003. B-40-854 | LUMP | LUMP | | | . |
| 0263 | 517.0650.S Painting Polysiloxane System (structure) 0004. B-40-856 | LUMP | LUMP | | | . |
| 0264 | 517.1010.S Concrete Staining (structure) 0001. B-40-786 **P** | 34,908.000 SF | | . | | . |
| 0265 | 517.1010.S Concrete Staining (structure) 0002. B-40-787 **P** | 14,580.000 SF | | . | | . |
| 0266 | 517.1010.S Concrete Staining (structure) 0003. B-40-788 **P** | 510.000 SF | | . | | . |
| 0267 | 517.1010.S Concrete Staining (structure) 0004. B-40-790 **P** | 11,306.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0268 | 517.1010.S Concrete Staining (structure) 0005. B-40-795 **P** | 2,780.000 SF | | . | | . |
| 0269 | 517.1010.S Concrete Staining (structure) 0006. B-40-796 **P** | 3,935.000 SF | | . | | . |
| 0270 | 517.1010.S Concrete Staining (structure) 0007. B-40-797 **P** | 3,190.000 SF | | . | | . |
| 0271 | 517.1010.S Concrete Staining (structure) 0008. B-40-850 **P** | 1,350.000 SF | | . | | . |
| 0272 | 517.1010.S Concrete Staining (structure) 0009. B-40-851 **P** | 14,657.000 SF | | . | | . |
| 0273 | 517.1010.S Concrete Staining (structure) 0010. B-40-853 **P** | 31,220.000 SF | | . | | . |
| 0274 | 517.1010.S Concrete Staining (structure) 0011. B-40-854 **P** | 77,980.000 SF | | . | | . |
| 0275 | 517.1010.S Concrete Staining (structure) 0012. B-40-856 **P** | 69,015.000 SF | | . | | . |
| 0276 | 517.1010.S Concrete Staining (structure) 0013. B-40-858 **P** | 1,070.000 SF | | . | | . |
| 0277 | 517.1010.S Concrete Staining (structure) 0014. B-40-859 **P** | 5,178.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0278 | 517.1010.S Concrete Staining (structure) 0015. B-40-860 **P** | 4,286.000 SF | | . | | . |
| 0279 | 517.1010.S Concrete Staining (structure) 0016. B-40-861 **P** | 7,735.000 SF | | . | | . |
| 0280 | 517.1010.S Concrete Staining (structure) 0017. B-40-867 **P** | 9,876.000 SF | | . | | . |
| 0281 | 517.1010.S Concrete Staining (structure) 0018. B-40-869 **P** | 26,300.000 SF | | . | | . |
| 0282 | 517.1010.S Concrete Staining (structure) 0019. B-40-870 **P** | 28,300.000 SF | | . | | . |
| 0283 | 517.1010.S Concrete Staining (structure) 0021. B-40-882 **P** | 10,570.000 SF | | . | | . |
| 0284 | 517.1010.S Concrete Staining (structure) 0022. B-40-883 **P** | 10,205.000 SF | | . | | . |
| 0285 | 517.1010.S Concrete Staining (structure) 0023. R-40-467 **P** | 6,125.000 SF | | . | | . |
| 0286 | 517.1010.S Concrete Staining (structure) 0024. R-40-468 **P** | 9,370.000 SF | | . | | . |
| 0287 | 517.1010.S Concrete Staining (structure) 0025. R-40-469 **P** | 1,350.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0288 | 517.1010.S Concrete Staining (structure) 0026. R-40-470 **P** | 6,295.000 SF | | . | | . |
| 0289 | 517.1010.S Concrete Staining (structure) 0027. R-40-497 **P** | 3,345.000 SF | | . | | . |
| 0290 | 517.1010.S Concrete Staining (structure) 0028. R-40-498 **P** | 13,640.000 SF | | . | | . |
| 0291 | 517.1010.S Concrete Staining (structure) 0029. R-40-505 **P** | 7,278.000 SF | | . | | . |
| 0292 | 517.1010.S Concrete Staining (structure) 0030. R-40-507 **P** | 7,616.000 SF | | . | | . |
| 0293 | 517.1010.S Concrete Staining (structure) 0031. R-40-509 **P** | 11,995.000 SF | | . | | . |
| 0294 | 517.1010.S Concrete Staining (structure) 0033. R-40-511 **P** | 2,105.000 SF | | . | | . |
| 0295 | 517.1010.S Concrete Staining (structure) 0034. R-40-516 **P** | 15,710.000 SF | | . | | . |
| 0296 | 517.1010.S Concrete Staining (structure) 0035. R-40-518 **P** | 5,840.000 SF | | . | | . |
| 0297 | 517.1010.S Concrete Staining (structure) 0036. R-40-520 **P** | 3,144.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0298 | 517.1010.S Concrete Staining (structure) 0037. R-40-522 **P** | 3,600.000 SF | | . | | . |
| 0299 | 517.1010.S Concrete Staining (structure) 0038. R-40-524 **P** | 4,015.000 SF | | . | | . |
| 0300 | 517.1010.S Concrete Staining (structure) 0039. R-40-525 **P** | 6,520.000 SF | | . | | . |
| 0301 | 517.1010.S Concrete Staining (structure) 0040. R-40-527 **P** | 5,461.000 SF | | . | | . |
| 0302 | 517.1010.S Concrete Staining (structure) 0041. R-40-529 **P** | 3,374.000 SF | | . | | . |
| 0303 | 517.1010.S Concrete Staining (structure) 0042. R-40-532 **P** | 8,263.000 SF | | . | | . |
| 0304 | 517.1010.S Concrete Staining (structure) 0043. R-40-534 **P** | 839.000 SF | | . | | . |
| 0305 | 517.1010.S Concrete Staining (structure) 0044. R-40-535 **P** | 10,223.000 SF | | . | | . |
| 0306 | 517.1010.S Concrete Staining (structure) 0045. R-40-540 **P** | 16,790.000 SF | | . | | . |
| 0307 | 517.1010.S Concrete Staining (structure) 0046. R-40-545 **P** | 27,597.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0308 | 517.1010.S Concrete Staining (structure) 0047. R-40-547 **P** | 7,961.000 SF | | . | | . |
| 0309 | 517.1010.S Concrete Staining (structure) 0048. R-40-557 **P** | 7,150.000 SF | | . | | . |
| 0310 | 517.1010.S Concrete Staining (structure) 0049. R-40-558 **P** | 2,463.000 SF | | . | | . |
| 0311 | 517.1010.S Concrete Staining (structure) 0050. R-40-559 **P** | 4,740.000 SF | | . | | . |
| 0312 | 517.1010.S Concrete Staining (structure) 0051. S-40-11 **P** | 660.000 SF | | . | | . |
| 0313 | 517.1010.S Concrete Staining (structure) 0052. S-40-13 **P** | 488.000 SF | | . | | . |
| 0314 | 517.1010.S Concrete Staining (structure) 0053. S-40-15 **P** | 500.000 SF | | . | | . |
| 0315 | 517.1010.S Concrete Staining (structure) 0054. S-40-26 **P** | 453.000 SF | | . | | . |
| 0316 | 517.1010.S Concrete Staining (structure) 0055. S-40-29 **P** | 465.000 SF | | . | | . |
| 0317 | 517.1010.S Concrete Staining (structure) 0056. S-40-30 **P** | 574.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0318 | 517.1010.S Concrete Staining (structure) 0057. S-40-31 **P** | 598.000 SF | | . | | . |
| 0319 | 517.1010.S Concrete Staining (structure) 0058. S-40-35 **P** | 465.000 SF | | . | | . |
| 0320 | 517.1010.S Concrete Staining (structure) 0060. S-40-40 **P** | 484.000 SF | | . | | . |
| 0321 | 517.1010.S Concrete Staining (structure) 0062. S-40-42 **P** | 429.000 SF | | . | | . |
| 0322 | 517.1010.S Concrete Staining (structure) 0063. S-40-46 **P** | 410.000 SF | | . | | . |
| 0323 | 517.1010.S Concrete Staining (structure) 0064. S-40-52 **P** | 465.000 SF | | . | | . |
| 0324 | 517.1010.S Concrete Staining (structure) 0065. S-40-74 **P** | 504.000 SF | | . | | . |
| 0325 | 517.1010.S Concrete Staining (structure) 0067. S-40-82 **P** | 84.000 SF | | . | | . |
| 0326 | 517.1010.S Concrete Staining (structure) 0069. S-40-102 **P** | 472.000 SF | | . | | . |
| 0327 | 517.1010.S Concrete Staining (structure) 0072. S-40-111 **P** | 594.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0328 | 517.1010.S Concrete Staining (structure) 0074. S-40-114 **P** | 433.000 SF | | . | | . |
| 0329 | 517.1010.S Concrete Staining (structure) 0075. S-40-115 **P** | 437.000 SF | | . | | . |
| 0330 | 517.1010.S Concrete Staining (structure) 0076. S-40-3 **P** | 855.000 SF | | . | | . |
| 0331 | 517.1010.S Concrete Staining (structure) 0077. S-40-8 **P** | 964.000 SF | | . | | . |
| 0332 | 517.1010.S Concrete Staining (structure) 0078. S-40-10 **P** | 995.000 SF | | . | | . |
| 0333 | 517.1010.S Concrete Staining (structure) 0079. S-40-19 **P** | 957.000 SF | | . | | . |
| 0334 | 517.1010.S Concrete Staining (structure) 0080. S-40-20 **P** | 940.000 SF | | . | | . |
| 0335 | 517.1010.S Concrete Staining (structure) 0081. S-40-23 **P** | 851.000 SF | | . | | . |
| 0336 | 517.1010.S Concrete Staining (structure) 0082. S-40-33 **P** | 944.000 SF | | . | | . |
| 0337 | 517.1010.S Concrete Staining (structure) 0083. S-40-34 **P** | 944.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0338 | 517.1010.S Concrete Staining (structure) 0084. S-40-45 **P** | 614.000 SF | | . | | . |
| 0339 | 517.1010.S Concrete Staining (structure) 0085. S-40-53 **P** | 969.000 SF | | . | | . |
| 0340 | 517.1010.S Concrete Staining (structure) 0086. S-40-55 **P** | 952.000 SF | | . | | . |
| 0341 | 517.1010.S Concrete Staining (structure) 0087. S-40-80 **P** | 1,054.000 SF | | . | | . |
| 0342 | 517.1010.S Concrete Staining (structure) 0088. S-40-81 **P** | 576.000 SF | | . | | . |
| 0343 | 517.1010.S Concrete Staining (structure) 0089. S-40-84 **P** | 1,041.000 SF | | . | | . |
| 0344 | 517.1010.S Concrete Staining (structure) 0090. S-40-86 **P** | 1,003.000 SF | | . | | . |
| 0345 | 517.1010.S Concrete Staining (structure) 0091. S-40-91 **P** | 1,012.000 SF | | . | | . |
| 0346 | 517.1010.S Concrete Staining (structure) 0092. S-40-93 **P** | 944.000 SF | | . | | . |
| 0347 | 517.1010.S Concrete Staining (structure) 0094. S-40-97 **P** | 1,210.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0348 | 517.1010.S Concrete Staining (structure) 0095. S-40-98 **P** | 952.000 SF | | . | | . |
| 0349 | 517.1010.S Concrete Staining (structure) 0096. S-40-103 **P** | 1,003.000 SF | | . | | . |
| 0350 | 517.1010.S Concrete Staining (structure) 0097. S-40-105 **P** | 957.000 SF | | . | | . |
| 0351 | 517.1010.S Concrete Staining (structure) 0098. S-40-112 **P** | 1,282.000 SF | | . | | . |
| 0352 | 517.1010.S Concrete Staining (structure) 0099. S-40-138 **P** | 817.000 SF | | . | | . |
| 0353 | 517.1010.S Concrete Staining (structure) 0103. B-40-871 **P** | 4,806.000 SF | | . | | . |
| 0354 | 517.1010.S Concrete Staining (structure) 0104. B-40-872 **P** | 4,709.000 SF | | . | | . |
| 0355 | 517.1010.S Concrete Staining (structure) 0105. B-40-873 **P** | 11,870.000 SF | | . | | . |
| 0356 | 517.1010.S Concrete Staining (structure) 0106. B-40-874 **P** | 12,860.000 SF | | . | | . |
| 0357 | 517.1010.S Concrete Staining (structure) 0107. R-40-495 **P** | 9,865.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0358 | 517.1010.S Concrete Staining (structure) 0109. R-40-631 **P** | 1,690.000 SF | | . | | . |
| 0359 | 517.1010.S Concrete Staining (structure) 0110. R-40-655 **P** | 1,205.000 SF | | . | | . |
| 0360 | 517.1010.S Concrete Staining (structure) 0111. S-40-782 **P** | 286.000 SF | | . | | . |
| 0361 | 517.1010.S Concrete Staining (structure) 0112. S-40-787 **P** | 290.000 SF | | . | | . |
| 0362 | 517.1010.S Concrete Staining (structure) 0113. S-67-47 **P** | 961.000 SF | | . | | . |
| 0363 | 517.1015.S Concrete Staining Multi-Color (structure) 0001. B-40-870 | 615.000 SF | | . | | . |
| 0364 | 517.1015.S Concrete Staining Multi-Color (structure) 0002. R-40-525 | 13,015.000 SF | | . | | . |
| 0365 | 517.1015.S Concrete Staining Multi-Color (structure) 0003. R-40-529 | 295.000 SF | | . | | . |
| 0366 | 517.1015.S Concrete Staining Multi-Color (structure) 0004. R-40-532 | 12,338.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0367 | 517.1015.S Concrete Staining Multi-Color (structure) 0005. R-40-534 | 4,103.000 SF | | . | | . |
| 0368 | 517.1015.S Concrete Staining Multi-Color (structure) 0006. R-40-540 | 59,111.000 SF | | . | | . |
| 0369 | 517.1015.S Concrete Staining Multi-Color (structure) 0007. Minor Retaining Wall R-2 | 885.000 SF | | . | | . |
| 0370 | 517.1015.S Concrete Staining Multi-Color (structure) 0008. R-40-524 | 6,195.000 SF | | . | | . |
| 0371 | 517.1050.S Architectural Surface Treatment (structure) 0001. R-40-467 **P** | 5,635.000 SF | | . | | . |
| 0372 | 517.1050.S Architectural Surface Treatment (structure) 0002. R-40-468 **P** | 3,400.000 SF | | . | | . |
| 0373 | 517.1050.S Architectural Surface Treatment (structure) 0003. R-40-469 **P** | 1,240.000 SF | | . | | . |
| 0374 | 517.1050.S Architectural Surface Treatment (structure) 0004. R-40-470 **P** | 1,525.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0375 | 517.1050.S Architectural Surface Treatment (structure) 0005. R-40-497 **P** | 2,440.000 SF | | . | | . |
| 0376 | 517.1050.S Architectural Surface Treatment (structure) 0006. R-40-498 **P** | 10,160.000 SF | | . | | . |
| 0377 | 517.1050.S Architectural Surface Treatment (structure) 0007. R-40-505 **P** | 6,004.000 SF | | . | | . |
| 0378 | 517.1050.S Architectural Surface Treatment (structure) 0008. R-40-507 **P** | 7,520.000 SF | | . | | . |
| 0379 | 517.1050.S Architectural Surface Treatment (structure) 0009. R-40-509 **P** | 9,785.000 SF | | . | | . |
| 0380 | 517.1050.S Architectural Surface Treatment (structure) 0011. R-40-511 **P** | 1,900.000 SF | | . | | . |
| 0381 | 517.1050.S Architectural Surface Treatment (structure) 0012. R-40-516 **P** | 13,950.000 SF | | . | | . |
| 0382 | 517.1050.S Architectural Surface Treatment (structure) 0013. R-40-518 **P** | 6,030.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0383 | 517.1050.S Architectural Surface Treatment (structure) 0014. R-40-520 **P** | 2,504.000 SF | | . | | . |
| 0384 | 517.1050.S Architectural Surface Treatment (structure) 0015. R-40-522 **P** | 2,845.000 SF | | . | | . |
| 0385 | 517.1050.S Architectural Surface Treatment (structure) 0016. R-40-524 **P** | 8,015.000 SF | | . | | . |
| 0386 | 517.1050.S Architectural Surface Treatment (structure) 0017. R-40-525 **P** | 7,215.000 SF | | . | | . |
| 0387 | 517.1050.S Architectural Surface Treatment (structure) 0018. R-40-527 **P** | 2,887.000 SF | | . | | . |
| 0388 | 517.1050.S Architectural Surface Treatment (structure) 0019. R-40-529 **P** | 296.000 SF | | . | | . |
| 0389 | 517.1050.S Architectural Surface Treatment (structure) 0020. R-40-532 **P** | 14,226.000 SF | | . | | . |
| 0390 | 517.1050.S Architectural Surface Treatment (structure) 0021. R-40-534 **P** | 4,260.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0391 | 517.1050.S Architectural Surface Treatment (structure) 0022. R-40-535 **P** | 7,830.000 SF | | . | | . |
| 0392 | 517.1050.S Architectural Surface Treatment (structure) 0023. R-40-540 **P** | 66,657.000 SF | | . | | . |
| 0393 | 517.1050.S Architectural Surface Treatment (structure) 0024. R-40-545 **P** | 21,460.000 SF | | . | | . |
| 0394 | 517.1050.S Architectural Surface Treatment (structure) 0025. R-40-547 **P** | 4,523.000 SF | | . | | . |
| 0395 | 517.1050.S Architectural Surface Treatment (structure) 0026. R-40-558 **P** | 2,557.000 SF | | . | | . |
| 0396 | 517.1050.S Architectural Surface Treatment (structure) 0027. R-40-559 **P** | 3,725.000 SF | | . | | . |
| 0397 | 517.1050.S Architectural Surface Treatment (structure) 0028. B-40-850 **P** | 390.000 SF | | . | | . |
| 0398 | 517.1050.S Architectural Surface Treatment (structure) 0029. B-40-858 **P** | 930.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0399 | 517.1050.S Architectural Surface Treatment (structure) 0030. B-40-870 **P** | 601.000 SF | | . | | . |
| 0400 | 517.1050.S Architectural Surface Treatment (structure) 0031. R-40-495 **P** | 7,275.000 SF | | . | | . |
| 0401 | 517.1050.S Architectural Surface Treatment (structure) 0032. R-40-631 **P** | 1,485.000 SF | | . | | . |
| 0402 | 517.1050.S Architectural Surface Treatment (structure) 0033. R-40-655 **P** | 1,040.000 SF | | . | | . |
| 0403 | 517.1050.S Architectural Surface Treatment (structure) 0034. R-40-557 **P** | 7,150.000 SF | | . | | . |
| 0404 | 517.1050.S Architectural Surface Treatment (structure) 0035. Minor Retaining Wall R-2 **P** | 745.000 SF | | . | | . |
| 0405 | 520.8000 Concrete Collars for Pipe | 123.000 EACH | | . | | . |
| 0406 | 522.1012 Apron Endwalls for Culvert Pipe Reinforced Concrete 12-Inch | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0407 | 522.1015 Apron Endwalls for Culvert Pipe Reinforced Concrete 15-Inch | 1.000 EACH | | . | | . |
| 0408 | 522.1018 Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch | 6.000 EACH | | . | | . |
| 0409 | 522.1024 Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch | 10.000 EACH | | . | | . |
| 0410 | 522.1054 Apron Endwalls for Culvert Pipe Reinforced Concrete 54-Inch | 1.000 EACH | | . | | . |
| 0411 | 522.1060 Apron Endwalls for Culvert Pipe Reinforced Concrete 60-Inch | 1.000 EACH | | . | | . |
| 0412 | 531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0001. N-40-61 **P** | 21,610.000 SF | | . | | . |
| 0413 | 531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0002. N-40-62 **P** | 6,900.000 SF | | . | | . |
| 0414 | 531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0003. N-40-63 **P** | 24,250.000 SF | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0415 | 531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0004. N-40-64 **P** | 37,450.000 SF | | . | | . |
| 0416 | 531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0006. N-40-66 **P** | 41,240.000 SF | | . | | . |
| 0417 | 531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0007. N-40-67 **P** | 19,750.000 SF | | . | | . |
| 0418 | 531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0008. N-40-76 **P** | 10,480.000 SF | | . | | . |
| 0419 | 531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0009. N-40-77 **P** | 2,170.000 SF | | . | | . |
| 0420 | 531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0010. N-40-78 **P** | 15,150.000 SF | | . | | . |
| 0421 | 531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0011. N-40-79 **P** | 18,170.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0422 | 550.0010 Pre-Boring Unconsolidated Materials | 3,027.000 LF | | . | | . |
| 0423 | 550.0020 Pre-Boring Rock or Consolidated Materials | 120.000 LF | | . | | . |
| 0424 | 550.0500 Pile Points | 560.000 EACH | | . | | . |
| 0425 | 550.1100 Piling Steel HP 10-Inch X 42 Lb | 2,200.000 LF | | . | | . |
| 0426 | 550.1120 Piling Steel HP 12-Inch X 53 Lb | 5,710.000 LF | | . | | . |
| 0427 | 550.1140 Piling Steel HP 14-Inch X 73 Lb | 29,715.000 LF | | . | | . |
| 0428 | 550.2146 Piling CIP Concrete 14 X 0.375-Inch | 8,228.000 LF | | . | | . |
| 0429 | 550.2166 Piling CIP Concrete 16 X 0.375-Inch | 4,770.000 LF | | . | | . |
| 0430 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 16,920.000 LF | | . | | . |
| 0431 | 601.0331 Concrete Curb & Gutter 31-Inch **P** | 12,328.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0432 | 601.0551 Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type A **P** | 4,951.000 LF | | . | | . |
| 0433 | 601.0553 Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type D **P** | 454.000 LF | | . | | . |
| 0434 | 601.0555 Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type A **P** | 113.000 LF | | . | | . |
| 0435 | 601.0557 Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D | 90.000 LF | | . | | . |
| 0436 | 601.0600 Concrete Curb Pedestrian | 754.000 LF | | . | | . |
| 0437 | 602.0410 Concrete Sidewalk 5-Inch **P** | 46,212.000 SF | | . | | . |
| 0438 | 602.0515 Curb Ramp Detectable Warning Field Natural Patina | 392.000 SF | | . | | . |
| 0439 | 602.1500 Concrete Steps | 8.000 SF | | . | | . |
| 0440 | 603.1132 Concrete Barrier Type S32 **P** | 4,038.000 LF | | . | | . |
| 0441 | 603.1142 Concrete Barrier Type S42 **P** | 105,699.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0442 | 603.1156 Concrete Barrier Type S56 **P** | 210.000 LF | | . | | . |
| 0443 | 603.1242 Concrete Barrier Type S42A **P** | 377.000 LF | | . | | . |
| 0444 | 603.1256 Concrete Barrier Type S56A **P** | 714.000 LF | | . | | . |
| 0445 | 603.1332 Concrete Barrier Type S32B **P** | 30.000 LF | | . | | . |
| 0446 | 603.1342 Concrete Barrier Type S42B **P** | 303.000 LF | | . | | . |
| 0447 | 603.1442 Concrete Barrier Type S42C **P** | 6,371.000 LF | | . | | . |
| 0448 | 603.1456 Concrete Barrier Type S56C **P** | 1,553.000 LF | | . | | . |
| 0449 | 603.3113 Concrete Barrier Transition Type NJ32SF to S36 | 3.000 EACH | | . | | . |
| 0450 | 603.3213 Concrete Barrier Transition Type F32SF to S36 | 6.000 EACH | | . | | . |
| 0451 | 603.3513 Concrete Barrier Transition Type S32 to S36 | 6.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0452 | 603.3535 Concrete Barrier Transition Type S36 to S42 | 15.000 EACH | | . | | . |
| 0453 | 603.3559 Concrete Barrier Transition Type S42 to S56 | 18.000 EACH | | . | | . |
| 0454 | 603.8000 Concrete Barrier Temporary Precast Delivered | 94,147.000 LF | | . | | . |
| 0455 | 603.8125 Concrete Barrier Temporary Precast Installed | 181,047.000 LF | | . | | . |
| 0456 | 604.0400 Slope Paving Concrete | 1,540.000 SY | | . | | . |
| 0457 | 606.0200 Riprap Medium | 531.000 CY | | . | | . |
| 0458 | 606.0300 Riprap Heavy | 640.000 CY | | . | | . |
| 0459 | 606.0400 Riprap Extra-Heavy | 136.000 CY | | . | | . |
| 0460 | 608.0312 Storm Sewer Pipe Reinforced Concrete Class III 12-Inch | 1,561.000 LF | | . | | . |
| 0461 | 608.0315 Storm Sewer Pipe Reinforced Concrete Class III 15-Inch | 591.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0462 | 608.0318 Storm Sewer Pipe Reinforced Concrete Class III 18-Inch | 3,109.000 LF | | . | | . |
| 0463 | 608.0324 Storm Sewer Pipe Reinforced Concrete Class III 24-Inch | 39,419.000 LF | | . | | . |
| 0464 | 608.0330 Storm Sewer Pipe Reinforced Concrete Class III 30-Inch | 2,202.000 LF | | . | | . |
| 0465 | 608.0336 Storm Sewer Pipe Reinforced Concrete Class III 36-Inch | 3,380.000 LF | | . | | . |
| 0466 | 608.0342 Storm Sewer Pipe Reinforced Concrete Class III 42-Inch | 548.000 LF | | . | | . |
| 0467 | 608.0348 Storm Sewer Pipe Reinforced Concrete Class III 48-Inch | 1,139.000 LF | | . | | . |
| 0468 | 608.0354 Storm Sewer Pipe Reinforced Concrete Class III 54-Inch | 1,025.000 LF | | . | | . |
| 0469 | 608.0360 Storm Sewer Pipe Reinforced Concrete Class III 60-Inch | 53.000 LF | | . | | . |
| 0470 | 608.0366 Storm Sewer Pipe Reinforced Concrete Class III 66-Inch | 279.000 LF | | . | | . |
| 0471 | 608.0412 Storm Sewer Pipe Reinforced Concrete Class IV 12-Inch | 30.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0472 | 608.0418 Storm Sewer Pipe Reinforced Concrete Class IV 18-Inch | 592.000 LF | | . | | . |
| 0473 | 608.0424 Storm Sewer Pipe Reinforced Concrete Class IV 24-Inch | 1,957.000 LF | | . | | . |
| 0474 | 608.0430 Storm Sewer Pipe Reinforced Concrete Class IV 30-Inch | 235.000 LF | | . | | . |
| 0475 | 608.0436 Storm Sewer Pipe Reinforced Concrete Class IV 36-Inch | 487.000 LF | | . | | . |
| 0476 | 608.0448 Storm Sewer Pipe Reinforced Concrete Class IV 48-Inch | 83.000 LF | | . | | . |
| 0477 | 608.0454 Storm Sewer Pipe Reinforced Concrete Class IV 54-Inch | 712.000 LF | | . | | . |
| 0478 | 608.0466 Storm Sewer Pipe Reinforced Concrete Class IV 66-Inch | 375.000 LF | | . | | . |
| 0479 | 608.0518 Storm Sewer Pipe Reinforced Concrete Class V 18-Inch | 313.000 LF | | . | | . |
| 0480 | 608.0524 Storm Sewer Pipe Reinforced Concrete Class V 24-Inch | 704.000 LF | | . | | . |
| 0481 | 608.0536 Storm Sewer Pipe Reinforced Concrete Class V 36-Inch | 269.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0482 | 608.0566 Storm Sewer Pipe Reinforced Concrete Class V 66-Inch | 199.000 LF | | . | | . |
| 0483 | 611.0420 Reconstructing Manholes | 6.000 EACH | | . | | . |
| 0484 | 611.0430 Reconstructing Inlets | 20.000 EACH | | . | | . |
| 0485 | 611.0535 Manhole Covers Type J-Special | 86.000 EACH | | . | | . |
| 0486 | 611.0624 Inlet Covers Type H | 43.000 EACH | | . | | . |
| 0487 | 611.0627 Inlet Covers Type HM | 44.000 EACH | | . | | . |
| 0488 | 611.0642 Inlet Covers Type MS | 138.000 EACH | | . | | . |
| 0489 | 611.0654 Inlet Covers Type V | 488.000 EACH | | . | | . |
| 0490 | 611.0663 Inlet Covers Type X | 26.000 EACH | | . | | . |
| 0491 | 611.2003 Manholes 3-FT Diameter | 5.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0492 | 611.2004 Manholes 4-FT Diameter | 31.000 EACH | | . | | . |
| 0493 | 611.2005 Manholes 5-FT Diameter | 232.000 EACH | | . | | . |
| 0494 | 611.2006 Manholes 6-FT Diameter | 52.000 EACH | | . | | . |
| 0495 | 611.2007 Manholes 7-FT Diameter | 22.000 EACH | | . | | . |
| 0496 | 611.2008 Manholes 8-FT Diameter | 10.000 EACH | | . | | . |
| 0497 | 611.3003 Inlets 3-FT Diameter | 22.000 EACH | | . | | . |
| 0498 | 611.3004 Inlets 4-FT Diameter | 386.000 EACH | | . | | . |
| 0499 | 611.3225 Inlets 2x2.5-FT | 40.000 EACH | | . | | . |
| 0500 | 611.3230 Inlets 2x3-FT | 4.000 EACH | | . | | . |
| 0501 | 611.3901 Inlets Median 1 Grate | 44.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0502 | 611.3902 Inlets Median 2 Grate | 47.000 EACH | | . | | . |
| 0503 | 611.8110 Adjusting Manhole Covers | 6.000 EACH | | . | | . |
| 0504 | 611.8115 Adjusting Inlet Covers | 16.000 EACH | | . | | . |
| 0505 | 611.8120.S Cover Plates Temporary | 39.000 EACH | | . | | . |
| 0506 | 611.9800.S Pipe Grates | 11.000 EACH | | . | | . |
| 0507 | 612.0106 Pipe Underdrain 6-Inch | 120.000 LF | | . | | . |
| 0508 | 612.0206 Pipe Underdrain Unperforated 6-Inch | 2,193.000 LF | | . | | . |
| 0509 | 612.0406 Pipe Underdrain Wrapped 6-Inch | 22,868.000 LF | | . | | . |
| 0510 | 612.0806 Apron Endwalls for Underdrain Reinforced Concrete 6-Inch | 5.000 EACH | | . | | . |
| 0511 | 614.0800 Crash Cushions Permanent | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0512 | 614.0805 Crash Cushions Permanent Low Maintenance | 16.000 EACH | | . | | . |
| 0513 | 614.0905 Crash Cushions Temporary | 103.000 EACH | | . | | . |
| 0514 | 614.0950 Replacing Guardrail Posts and Blocks | 30.000 EACH | | . | | . |
| 0515 | 614.0951 Replacing Guardrail Rail and Hardware | 500.000 LF | | . | | . |
| 0516 | 614.2300 MGS Guardrail 3 | 443.000 LF | | . | | . |
| 0517 | 614.2500 MGS Thrie Beam Transition | 352.000 LF | | . | | . |
| 0518 | 614.2610 MGS Guardrail Terminal EAT | 10.000 EACH | | . | | . |
| 0519 | 614.2620 MGS Guardrail Terminal Type 2 | 2.000 EACH | | . | | . |
| 0520 | 616.0206 Fence Chain Link 6-FT | 20,769.000 LF | | . | | . |
| 0521 | 616.0208 Fence Chain Link 8-FT | 1,640.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0522 | 616.0329 Gates Chain Link (width) 0001. 12-Ft | 21.000 EACH | | . | | . |
| 0523 | 616.0329 Gates Chain Link (width) 0002. 30-Ft | 5.000 EACH | | . | | . |
| 0524 | 616.0329 Gates Chain Link (width) 0003. 15-Ft | 3.000 EACH | | . | | . |
| 0525 | 616.0700.S Fence Safety | 5,000.000 LF | | . | | . |
| 0526 | 619.1000 Mobilization | 1.000 EACH | | . | | . |
| 0527 | 620.0100 Concrete Corrugated Median | 167.000 SF | | . | | . |
| 0528 | 620.0300 Concrete Median Sloped Nose **P** | 860.000 SF | | . | | . |
| 0529 | 623.0200 Dust Control Surface Treatment | 703,860.000 SY | | . | | . |
| 0530 | 624.0100 Water | 4,850.000 MGAL | | . | | . |
| 0531 | 625.0100 Topsoil **P** | 2,560.000 SY | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0532 | 628.1104 Erosion Bales | 2,326.000 EACH | | . | | . |
| 0533 | 628.1504 Silt Fence | 36,372.000 LF | | . | | . |
| 0534 | 628.1520 Silt Fence Maintenance | 36,372.000 LF | | . | | . |
| 0535 | 628.1905 Mobilizations Erosion Control | 63.000 EACH | | . | | . |
| 0536 | 628.1910 Mobilizations Emergency Erosion Control | 33.000 EACH | | . | | . |
| 0537 | 628.2004 Erosion Mat Class I Type B | 445,461.000 SY | | . | | . |
| 0538 | 628.2023 Erosion Mat Class II Type B | 68,614.000 SY | | . | | . |
| 0539 | 628.2027 Erosion Mat Class II Type C | 14,853.000 SY | | . | | . |
| 0540 | 628.6505 Soil Stabilizer Type A | 1.000 ACRE | | . | | . |
| 0541 | 628.6510 Soil Stabilizer Type B | 18.700 ACRE | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0542 | 628.7005 Inlet Protection Type A | 2,202.000 EACH | | . | | . |
| 0543 | 628.7010 Inlet Protection Type B | 506.000 EACH | | . | | . |
| 0544 | 628.7015 Inlet Protection Type C | 472.000 EACH | | . | | . |
| 0545 | 628.7020 Inlet Protection Type D | 2,176.000 EACH | | . | | . |
| 0546 | 628.7504 Temporary Ditch Checks | 7,433.000 LF | | . | | . |
| 0547 | 628.7560 Tracking Pads | 96.000 EACH | | . | | . |
| 0548 | 628.7570 Rock Bags | 788.000 EACH | | . | | . |
| 0549 | 629.0205 Fertilizer Type A | 17.900 CWT | | . | | . |
| 0550 | 629.0210 Fertilizer Type B | 244.600 CWT | | . | | . |
| 0551 | 630.0130 Seeding Mixture No. 30 | 6,252.000 LB | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0552 | 630.0180 Seeding Mixture No. 80 | 468.000 LB | | . | | . |
| 0553 | 630.0200 Seeding Temporary | 5,553.000 LB | | . | | . |
| 0554 | 631.0300 Sod Water | 181.800 MGAL | | . | | . |
| 0555 | 631.1000 Sod Lawn | 8,087.000 SY | | . | | . |
| 0556 | 632.0101 Trees (species) (size) (root) 0001. Catalpa, Northern B&B 2 Inch Cal | 2.000 EACH | | . | | . |
| 0557 | 632.0101 Trees (species) (size) (root) 0003. Coffeetree, Kentucky B&B 2 Inch Ca | 5.000 EACH | | . | | . |
| 0558 | 632.0101 Trees (species) (size) (root) 0005. Hackberry, Common B&B 2 Inch Cal | 8.000 EACH | | . | | . |
| 0559 | 632.0101 Trees (species) (size) (root) 0007. Honeylocust, Skyline B&B 2 Inch Ca | 6.000 EACH | | . | | . |
| 0560 | 632.0101 Trees (species) (size) (root) 0009. Oak, Swamp White B&B 2 Inch Cal | 7.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0561 | 632.0101 Trees (species) (size) (root) 0011. Basswood, American B&B 2 Inch Cal | 7.000 EACH | | . | | . |
| 0562 | 632.0101 Trees (species) (size) (root) 0013. Elm, Jefferson B&B 2 Inch Cal | 9.000 EACH | | . | | . |
| 0563 | 632.0101 Trees (species) (size) (root) 0015. Crabapple, Prairifire B&B 2 Inch Cal | 3.000 EACH | | . | | . |
| 0564 | 632.0101 Trees (species) (size) (root) 0017. Crabapple, Robinson B&B 2 Inch Cal | 6.000 EACH | | . | | . |
| 0565 | 632.0101 Trees (species) (size) (root) 0019. Redbud, Forest Pansy B&B 2 Inch Ca | 3.000 EACH | | . | | . |
| 0566 | 632.0101 Trees (species) (size) (root) 0021. Yellowwood, Perkins Pink B&B 2 Inch Cal | 2.000 EACH | | . | | . |
| 0567 | 632.0101 Trees (species) (size) (root) 0023. Juniper, Mountbatten B&B 5' Ht | 12.000 EACH | | . | | . |
| 0568 | 632.0201 Shrubs (species) (size) (root) 0025. Sumac, Gro Low B&B #3 Cont | 16.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0569 | 632.9101 Landscape Planting Surveillance and Care Cycles | 24.000 EACH | | . | | . |
| 0570 | 633.0500 Delineator Reflectors | 820.000 EACH | | . | | . |
| 0571 | 633.1000 Delineator Brackets | 820.000 EACH | | . | | . |
| 0572 | 633.5200 Markers Culvert End | 19.000 EACH | | . | | . |
| 0573 | 634.0618 Posts Wood 4x6-Inch X 18-FT | 117.000 EACH | | . | | . |
| 0574 | 634.0620 Posts Wood 4x6-Inch X 20-FT | 1.000 EACH | | . | | . |
| 0575 | 634.0622 Posts Wood 4x6-Inch X 22-FT | 82.000 EACH | | . | | . |
| 0576 | 634.0816 Posts Tubular Steel 2x2-Inch X 16-FT | 124.000 EACH | | . | | . |
| 0577 | 634.0885 Posts Tubular Steel 2x2-Inch X 8.5-FT | 69.000 EACH | | . | | . |
| 0578 | 635.0200 Sign Supports Structural Steel HS | 30,600.000 LB | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0579 | 635.0300 Sign Supports<br>Replacing Base<br>Connection Bolts | 4.000<br>EACH | | . | | . |
| 0580 | 636.0100 Sign Supports<br>Concrete Masonry **P** | 2,070.200<br>CY | | . | | . |
| 0581 | 636.0500 Sign Supports<br>Steel Reinforcement | 2,996.000<br>LB | | . | | . |
| 0582 | 636.1000 Sign Supports<br>Steel Reinforcement HS | 177,905.000<br>LB | | . | | . |
| 0583 | 636.1500 Sign Supports<br>Steel Coated<br>Reinforcement HS | 302,770.000<br>LB | | . | | . |
| 0584 | 637.1210 Signs Type I<br>Reflective H | 155.500<br>SF | | . | | . |
| 0585 | 637.1220 Signs Type I<br>Reflective SH | 25,125.500<br>SF | | . | | . |
| 0586 | 637.1230 Signs Type I<br>Reflective F | 90.000<br>SF | | . | | . |
| 0587 | 637.2210 Signs Type II<br>Reflective H | 4,851.700<br>SF | | . | | . |
| 0588 | 637.2215 Signs Type II<br>Reflective H Folding | 35.640<br>SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0589 | 637.2230 Signs Type II Reflective F | 2,612.750 SF | | . | | . |
| 0590 | 638.2101 Moving Signs Type I | 81.000 EACH | | . | | . |
| 0591 | 638.2102 Moving Signs Type II | 105.000 EACH | | . | | . |
| 0592 | 638.2601 Removing Signs Type I | 60.000 EACH | | . | | . |
| 0593 | 638.2602 Removing Signs Type II | 231.000 EACH | | . | | . |
| 0594 | 638.3000 Removing Small Sign Supports | 240.000 EACH | | . | | . |
| 0595 | 638.3100 Removing Structural Steel Sign Supports | 62.000 EACH | | . | | . |
| 0596 | 641.0100 Sign Bridge Single Pole Sign Support One Sign (structure) 0001. S-40-782 | LUMP | LUMP | | | . |
| 0597 | 641.0100 Sign Bridge Single Pole Sign Support One Sign (structure) 0002. S-40-787 | LUMP | LUMP | | | . |
| 0598 | 641.1200 Sign Bridge Cantilevered (structure) 0001. S-40-11 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0599 | 641.1200 Sign Bridge Cantilevered (structure) 0003. S-40-15 | LUMP | LUMP | | | . |
| 0600 | 641.1200 Sign Bridge Cantilevered (structure) 0004. S-40-26 | LUMP | LUMP | | | . |
| 0601 | 641.1200 Sign Bridge Cantilevered (structure) 0005. S-40-29 | LUMP | LUMP | | | . |
| 0602 | 641.1200 Sign Bridge Cantilevered (structure) 0006. S-40-30 | LUMP | LUMP | | | . |
| 0603 | 641.1200 Sign Bridge Cantilevered (structure) 0007. S-40-31 | LUMP | LUMP | | | . |
| 0604 | 641.1200 Sign Bridge Cantilevered (structure) 0008. S-40-35 | LUMP | LUMP | | | . |
| 0605 | 641.1200 Sign Bridge Cantilevered (structure) 0009. S-40-39 | LUMP | LUMP | | | . |
| 0606 | 641.1200 Sign Bridge Cantilevered (structure) 0010. S-40-40 | LUMP | LUMP | | | . |
| 0607 | 641.1200 Sign Bridge Cantilevered (structure) 0011. S-40-41 | LUMP | LUMP | | | . |
| 0608 | 641.1200 Sign Bridge Cantilevered (structure) 0012. S-40-42 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0609 | 641.1200 Sign Bridge Cantilevered (structure) 0013. S-40-46 | LUMP | LUMP | | | . |
| 0610 | 641.1200 Sign Bridge Cantilevered (structure) 0014. S-40-52 | LUMP | LUMP | | | . |
| 0611 | 641.1200 Sign Bridge Cantilevered (structure) 0015. S-40-74 | LUMP | LUMP | | | . |
| 0612 | 641.1200 Sign Bridge Cantilevered (structure) 0016. S-40-82 | LUMP | LUMP | | | . |
| 0613 | 641.1200 Sign Bridge Cantilevered (structure) 0017. S-40-102 | LUMP | LUMP | | | . |
| 0614 | 641.1200 Sign Bridge Cantilevered (structure) 0018. S-40-106 | LUMP | LUMP | | | . |
| 0615 | 641.1200 Sign Bridge Cantilevered (structure) 0019. S-40-110 | LUMP | LUMP | | | . |
| 0616 | 641.1200 Sign Bridge Cantilevered (structure) 0020. S-40-111 | LUMP | LUMP | | | . |
| 0617 | 641.1200 Sign Bridge Cantilevered (structure) 0021. S-40-113 | LUMP | LUMP | | | . |
| 0618 | 641.1200 Sign Bridge Cantilevered (structure) 0022. S-40-114 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0619 | 641.1200 Sign Bridge Cantilevered (structure) 0023. S-40-115 | LUMP | LUMP | | | . |
| 0620 | 641.1200 Sign Bridge Cantilevered (structure) 0024. S-40-152 | LUMP | LUMP | | | . |
| 0621 | 641.1200 Sign Bridge Cantilevered (structure) 0031. S-40-861 | LUMP | LUMP | | | . |
| 0622 | 641.1200 Sign Bridge Cantilevered (structure) 0032. S-40-862 | LUMP | LUMP | | | . |
| 0623 | 641.6600 Sign Bridge (structure) 0001. S-40-10 | LUMP | LUMP | | | . |
| 0624 | 641.6600 Sign Bridge (structure) 0002. S-40-19 | LUMP | LUMP | | | . |
| 0625 | 641.6600 Sign Bridge (structure) 0003. S-40-20 | LUMP | LUMP | | | . |
| 0626 | 641.6600 Sign Bridge (structure) 0004. S-40-23 | LUMP | LUMP | | | . |
| 0627 | 641.6600 Sign Bridge (structure) 0005. S-40-33 | LUMP | LUMP | | | . |
| 0628 | 641.6600 Sign Bridge (structure) 0006. S-40-34 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0629 | 641.6600 Sign Bridge (structure) 0007. S-40-45 | LUMP | LUMP | | | . |
| 0630 | 641.6600 Sign Bridge (structure) 0008. S-40-53 | LUMP | LUMP | | | . |
| 0631 | 641.6600 Sign Bridge (structure) 0009. S-40-55 | LUMP | LUMP | | | . |
| 0632 | 641.6600 Sign Bridge (structure) 0010. S-40-80 | LUMP | LUMP | | | . |
| 0633 | 641.6600 Sign Bridge (structure) 0011. S-40-81 | LUMP | LUMP | | | . |
| 0634 | 641.6600 Sign Bridge (structure) 0012. S-40-84 | LUMP | LUMP | | | . |
| 0635 | 641.6600 Sign Bridge (structure) 0013. S-40-86 | LUMP | LUMP | | | . |
| 0636 | 641.6600 Sign Bridge (structure) 0014. S-40-91 | LUMP | LUMP | | | . |
| 0637 | 641.6600 Sign Bridge (structure) 0015. S-40-93 | LUMP | LUMP | | | . |
| 0638 | 641.6600 Sign Bridge (structure) 0016. S-40-96 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0639 | 641.6600 Sign Bridge (structure) 0017. S-40-97 | LUMP | LUMP | | | . |
| 0640 | 641.6600 Sign Bridge (structure) 0018. S-40-98 | LUMP | LUMP | | | . |
| 0641 | 641.6600 Sign Bridge (structure) 0019. S-40-103 | LUMP | LUMP | | | . |
| 0642 | 641.6600 Sign Bridge (structure) 0020. S-40-105 | LUMP | LUMP | | | . |
| 0643 | 641.6600 Sign Bridge (structure) 0021. S-40-112 | LUMP | LUMP | | | . |
| 0644 | 641.6600 Sign Bridge (structure) 0023. S-67-47 | LUMP | LUMP | | | . |
| 0645 | 641.6600 Sign Bridge (structure) 0024. S-40-3 | LUMP | LUMP | | | . |
| 0646 | 641.6600 Sign Bridge (structure) 0025. S-40-8 | LUMP | LUMP | | | . |
| 0647 | 641.6600 Sign Bridge (structure) 0026. S-40-13 | LUMP | LUMP | | | . |
| 0648 | 641.8100 Overhead Sign Support (structure) 0001. S-40-955 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0649 | 641.8100 Overhead Sign Support (structure) 0002. S-40-957 | LUMP | LUMP | | | . |
| 0650 | 641.8100 Overhead Sign Support (structure) 0003. S-40-965 | LUMP | LUMP | | | . |
| 0651 | 641.8100 Overhead Sign Support (structure) 0004. S-40-973 | LUMP | LUMP | | | . |
| 0652 | 641.8100 Overhead Sign Support (structure) 0005. S-40-975 | LUMP | LUMP | | | . |
| 0653 | 641.8100 Overhead Sign Support (structure) 0006. S-40-138 | LUMP | LUMP | | | . |
| 0654 | 643.0200 Traffic Control Surveillance and Maintenance (project) 0001. 1060-33-81 | 1,033.000 DAY | | . | | . |
| 0655 | 643.0200 Traffic Control Surveillance and Maintenance (project) 0002. 1060-34-82 | 86.000 DAY | | . | | . |
| 0656 | 643.0300 Traffic Control Drums | 1,274,799 DAY | | . | | . |
| 0657 | 643.0410 Traffic Control Barricades Type II | 6,024.000 DAY | | . | | . |
| 0658 | 643.0420 Traffic Control Barricades Type III | 123,585.000 DAY | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0659 | 643.0500 Traffic Control Flexible Tubular Marker Posts | 148.000 EACH | | . | | . |
| 0660 | 643.0600 Traffic Control Flexible Tubular Marker Bases | 148.000 EACH | | . | | . |
| 0661 | 643.0705 Traffic Control Warning Lights Type A | 247,227.000 DAY | | . | | . |
| 0662 | 643.0715 Traffic Control Warning Lights Type C | 167,820.000 DAY | | . | | . |
| 0663 | 643.0800 Traffic Control Arrow Boards | 8,926.000 DAY | | . | | . |
| 0664 | 643.0900 Traffic Control Signs | 565,771.000 DAY | | . | | . |
| 0665 | 643.0910 Traffic Control Covering Signs Type I | 124.000 EACH | | . | | . |
| 0666 | 643.0920 Traffic Control Covering Signs Type II | 55.000 EACH | | . | | . |
| 0667 | 643.1000 Traffic Control Signs Fixed Message | 8,611.000 SF | | . | | . |
| 0668 | 643.1050 Traffic Control Signs PCMS | 9,556.000 DAY | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0669 | 643.1055.S Truck or Trailer Mounted Attenuator 0001. 1060-33-81 | 1,000.000 DAY | | . | | . |
| 0670 | 643.2000 Traffic Control Detour (project) 0001. 1060-33-81 | 1.000 EACH | | . | | . |
| 0671 | 643.2000 Traffic Control Detour (project) 0002. 1060-34-82 | 1.000 EACH | | . | | . |
| 0672 | 643.3000 Traffic Control Detour Signs | 897,738.000 DAY | | . | | . |
| 0673 | 645.0111 Geotextile Fabric Type DF Schedule A **P** | 162.000 SY | | . | | . |
| 0674 | 645.0112 Geotextile Fabric Type DF Schedule B **P** | 3,931.000 SY | | . | | . |
| 0675 | 645.0120 Geotextile Fabric Type HR | 2,178.000 SY | | . | | . |
| 0676 | 646.0106 Pavement Marking Epoxy 4-Inch | 123,692.000 LF | | . | | . |
| 0677 | 646.0126 Pavement Marking Epoxy 8-Inch | 2,443.000 LF | | . | | . |
| 0678 | 646.0600 Removing Pavement Markings | 139,765.000 LF | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0679 | 646.0841.S Pavement Marking Grooved Wet Reflective Contrast Tape 4-Inch **P** | 58,014.000 LF | | . | | . |
| 0680 | 646.0843.S Pavement Marking Grooved Wet Reflective Contrast Tape 8-Inch **P** | 59,589.000 LF | | . | | . |
| 0681 | 646.0883.S Pavement Marking Grooved Wet Reflective Tape 8-Inch **P** | 1,163.000 LF | | . | | . |
| 0682 | 646.2304.S Pavement Marking Grooved Wet Reflective Epoxy 4-Inch **P** | 187,373.000 LF | | . | | . |
| 0683 | 647.0166 Pavement Marking Arrows Epoxy Type 2 | 4.000 EACH | | . | | . |
| 0684 | 647.0196 Pavement Marking Arrows Epoxy Type 5 | 2.000 EACH | | . | | . |
| 0685 | 647.0356 Pavement Marking Words Epoxy | 2.000 EACH | | . | | . |
| 0686 | 647.0456 Pavement Marking Curb Epoxy | 215.000 LF | | . | | . |
| 0687 | 647.0606 Pavement Marking Island Nose Epoxy | 9.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0688 | 647.0726 Pavement Marking Diagonal Epoxy 12-Inch | 25,696.000 LF | | . | | . |
| 0689 | 647.0746 Pavement Marking Diagonal Epoxy 24-Inch | 5,857.000 LF | | . | | . |
| 0690 | 649.0100 Temporary Pavement Marking 4-Inch | 20,000.000 LF | | . | | . |
| 0691 | 649.0200 Temporary Pavement Marking Reflective Paint 4-Inch | 26,180.000 LF | | . | | . |
| 0692 | 649.0400 Temporary Pavement Marking Removable Tape 4-Inch | 41,245.000 LF | | . | | . |
| 0693 | 649.0701 Temporary Pavement Marking 8-Inch | 5,155.000 LF | | . | | . |
| 0694 | 649.0801 Temporary Pavement Marking Removable Tape 8-Inch | 4,660.000 LF | | . | | . |
| 0695 | 649.2100 Temporary Raised Pavement Markers | 2,592.000 EACH | | . | | . |
| 0696 | 652.0110 Conduit Rigid Metallic 1-Inch | 76.000 LF | | . | | . |
| 0697 | 652.0125 Conduit Rigid Metallic 2-Inch | 1,265.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0698 | 652.0210 Conduit Rigid Nonmetallic Schedule 40 1-Inch | 8.000 LF | | . | | . |
| 0699 | 652.0225 Conduit Rigid Nonmetallic Schedule 40 2-Inch | 63,496.000 LF | | . | | . |
| 0700 | 652.0235 Conduit Rigid Nonmetallic Schedule 40 3-Inch | 50,403.000 LF | | . | | . |
| 0701 | 652.0240 Conduit Rigid Nonmetallic Schedule 40 4-Inch | 4.000 LF | | . | | . |
| 0702 | 652.0325 Conduit Rigid Nonmetallic Schedule 80 2-Inch | 123.000 LF | | . | | . |
| 0703 | 652.0615 Conduit Special 3-Inch | 2,012.000 LF | | . | | . |
| 0704 | 652.0625 Conduit Special 4-Inch | 525.000 LF | | . | | . |
| 0705 | 652.0700.S Install Conduit into Existing Item | 34.000 EACH | | . | | . |
| 0706 | 652.0800 Conduit Loop Detector | 3,340.000 LF | | . | | . |
| 0707 | 653.0105 Pull Boxes Steel 12x24-Inch | 4.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0708 | 653.0135 Pull Boxes Steel 24x36-Inch | 63.000 EACH | | . | | . |
| 0709 | 653.0140 Pull Boxes Steel 24x42-Inch | 184.000 EACH | | . | | . |
| 0710 | 653.0220 Junction Boxes 18x6x6-Inch | 40.000 EACH | | . | | . |
| 0711 | 653.0222 Junction Boxes 18x12x6-Inch | 95.000 EACH | | . | | . |
| 0712 | 653.0905 Removing Pull Boxes | 56.000 EACH | | . | | . |
| 0713 | 654.0101 Concrete Bases Type 1 | 7.000 EACH | | . | | . |
| 0714 | 654.0102 Concrete Bases Type 2 | 1.000 EACH | | . | | . |
| 0715 | 654.0105 Concrete Bases Type 5 | 212.000 EACH | | . | | . |
| 0716 | 654.0110 Concrete Bases Type 10 | 4.000 EACH | | . | | . |
| 0717 | 654.0230 Concrete Control Cabinet Bases Type L30 | 6.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0718 | 655.0146 Cable In Duct 4-6 AWG | 4,352.000 LF | | . | | . |
| 0719 | 655.0230 Cable Traffic Signal 5-14 AWG | 1,403.000 LF | | . | | . |
| 0720 | 655.0240 Cable Traffic Signal 7-14 AWG | 2,951.000 LF | | . | | . |
| 0721 | 655.0250 Cable Traffic Signal 9-14 AWG | 1,434.000 LF | | . | | . |
| 0722 | 655.0260 Cable Traffic Signal 12-14 AWG | 1,082.000 LF | | . | | . |
| 0723 | 655.0310 Cable Type UF 2-12 AWG | 2,230.000 LF | | . | | . |
| 0724 | 655.0510 Electrical Wire Traffic Signals 12 AWG | 43,704.000 LF | | . | | . |
| 0725 | 655.0610 Electrical Wire Lighting 12 AWG | 106,313.000 LF | | . | | . |
| 0726 | 655.0615 Electrical Wire Lighting 10 AWG | 22,284.000 LF | | . | | . |
| 0727 | 655.0620 Electrical Wire Lighting 8 AWG | 2,977.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0728 | 655.0625 Electrical Wire Lighting 6 AWG | 293,888.000 LF | | . | | . |
| 0729 | 655.0630 Electrical Wire Lighting 4 AWG | 20,473.000 LF | | . | | . |
| 0730 | 655.0635 Electrical Wire Lighting 2 AWG | 11,369.000 LF | | . | | . |
| 0731 | 655.0645 Electrical Wire Lighting 1/0 AWG | 9,064.000 LF | | . | | . |
| 0732 | 655.0700 Loop Detector Lead In Cable | 34,415.000 LF | | . | | . |
| 0733 | 655.0800 Loop Detector Wire | 11,985.000 LF | | . | | . |
| 0734 | 656.0200 Electrical Service Meter Breaker Pedestal (location) 2001. CB-RM-40-0038 | LUMP | LUMP | | | . |
| 0735 | 656.0200 Electrical Service Meter Breaker Pedestal (location) 2002. CB-SDS-40-0039A | LUMP | LUMP | | | . |
| 0736 | 656.0200 Electrical Service Meter Breaker Pedestal (location) 2003. CB-SDS-40-0232 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0737 | 656.0200 Electrical Service Meter Breaker Pedestal (location) 2004. CB-SDS-40-0050 | LUMP | LUMP | | | . |
| 0738 | 656.0200 Electrical Service Meter Breaker Pedestal (location) 2005. CB-CCTV-40-0218 | LUMP | LUMP | | | . |
| 0739 | 656.0200 Electrical Service Meter Breaker Pedestal (location) 2006. CB-CCTV-40-0217 | LUMP | LUMP | | | . |
| 0740 | 656.0200 Electrical Service Meter Breaker Pedestal (location) 2007. CB-CCTV-40-0006 | LUMP | LUMP | | | . |
| 0741 | 656.0200 Electrical Service Meter Breaker Pedestal (location) 2008. CB-SDS-40-0230A | LUMP | LUMP | | | . |
| 0742 | 656.0400 Electrical Service Main Lugs Only Meter Pedestal (location) 0001. HL-40-GD | LUMP | LUMP | | | . |
| 0743 | 656.0400 Electrical Service Main Lugs Only Meter Pedestal (location) 0002. HL-40-ZB | LUMP | LUMP | | | . |
| 0744 | 656.0400 Electrical Service Main Lugs Only Meter Pedestal (location) 0003. HL-40-ZT | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0745 | 656.0400 Electrical Service Main Lugs Only Meter Pedestal (location) 0004. HL-40-ZC | LUMP | LUMP | | | . |
| 0746 | 656.0400 Electrical Service Main Lugs Only Meter Pedestal (location) 0005. HL-40-TV | LUMP | LUMP | | | . |
| 0747 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2001. CB-RM-40-0038 | LUMP | LUMP | | | . |
| 0748 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2002. CB-SDS-40-0041A | LUMP | LUMP | | | . |
| 0749 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2003. CB-SDS-40-0039A | LUMP | LUMP | | | . |
| 0750 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2004. CB-SDS-40-0232 | LUMP | LUMP | | | . |
| 0751 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2005. CB-SDS-40-0050 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0752 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2006. CB-SDS-40-0052 | LUMP | LUMP | | | . |
| 0753 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2007. CB-CCTV-40-0218 | LUMP | LUMP | | | . |
| 0754 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2008. CB-RM-40-0024 | LUMP | LUMP | | | . |
| 0755 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2009. CB-RM-40-0106 | LUMP | LUMP | | | . |
| 0756 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2010. CB-CCTV-40-0217 | LUMP | LUMP | | | . |
| 0757 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2011. CB-CCTV-40-0006 | LUMP | LUMP | | | . |
| 0758 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2012. CB-CCTV-40-0220 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0759 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2013. CB-SDS-40-0230A | LUMP | LUMP | | | . |
| 0760 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2014. CB-CCTV-40-0101 | LUMP | LUMP | | | . |
| 0761 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2015. CB-CCTV-40-0219 | LUMP | LUMP | | | . |
| 0762 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2016. CB-CCTV-40-0033 | LUMP | LUMP | | | . |
| 0763 | 657.0210 Transformer Bases Breakaway 15-17 Inch Bolt Circle | 104.000 EACH | . | | | . |
| 0764 | 657.0255 Transformer Bases Breakaway 11 1/2-Inch Bolt Circle | 206.000 EACH | . | | | . |
| 0765 | 657.0305 Poles Type 2 | 1.000 EACH | . | | | . |
| 0766 | 657.0322 Poles Type 5-Aluminum | 269.000 EACH | . | | | . |
| 0767 | 657.0375 Poles Type A | 108.000 EACH | . | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0768 | 657.0605 Luminaire Arms Single Member 4 1/2-Inch Clamp 4-FT | 16.000 EACH | | . | | . |
| 0769 | 657.0610 Luminaire Arms Single Member 4 1/2-Inch Clamp 6-FT | 287.000 EACH | | . | | . |
| 0770 | 657.0620 Luminaire Arms Single Member 6-Inch Clamp 4-FT | 208.000 EACH | | . | | . |
| 0771 | 657.1345 Install Poles Type 9 | 3.000 EACH | | . | | . |
| 0772 | 657.1350 Install Poles Type 10 | 1.000 EACH | | . | | . |
| 0773 | 657.1515 Install Monotube Arms 15-FT | 1.000 EACH | | . | | . |
| 0774 | 657.1525 Install Monotube Arms 25-FT | 1.000 EACH | | . | | . |
| 0775 | 657.1530 Install Monotube Arms 30-FT | 2.000 EACH | | . | | . |
| 0776 | 657.6005.S Anchor Assemblies Light Poles on Structures | 71.000 EACH | | . | | . |
| 0777 | 659.0802 Plaques Sequence Identification | 913.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0778 | 659.1120 Luminaires<br>Utility LED B | 307.000<br>EACH | | . | | . |
| 0779 | 659.1130 Luminaires<br>Utility LED D | 257.000<br>EACH | | . | | . |
| 0780 | 661.0700 Temporary Ramp Meter (location) 2001. Hwy 100 AND IH 94 Removal | LUMP | LUMP | | | . |
| 0781 | 662.1028.S Ramp Closure Gates Hardwired 28-FT | 1.000<br>EACH | | . | | . |
| 0782 | 662.1032.S Ramp Closure Gates Hardwired 32-FT | 2.000<br>EACH | | . | | . |
| 0783 | 662.1037.S Ramp Closure Gates Hardwired 37-FT | 2.000<br>EACH | | . | | . |
| 0784 | 662.1040.S Ramp Closure Gates Hardwired 40-FT | 1.000<br>EACH | | . | | . |
| 0785 | 670.0100 Field System Integrator 2001. FTMS | LUMP | LUMP | | | . |
| 0786 | 670.0100 Field System Integrator 2021. FTMS | LUMP | LUMP | | | . |
| 0787 | 670.0100 Field System Integrator 3001. Wisconsin Avenue Corridor | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0788 | 670.0200 ITS Documentation 2001. FTMS | LUMP | LUMP | | | . |
| 0789 | 670.0200 ITS Documentation 2021. FTMS | LUMP | LUMP | | | . |
| 0790 | 670.0200 ITS Documentation 3001. Wisconsin Avenue Corridor | LUMP | LUMP | | | . |
| 0791 | 671.0132 Conduit HDPE 3-Duct 2-Inch | 19,150.000 LF | | . | | . |
| 0792 | 671.0232 Conduit HDPE Directional Bore 3-Duct 2-Inch | 915.000 LF | | . | | . |
| 0793 | 672.0100 Base ITS Controller Cabinet | 5.000 EACH | | . | | . |
| 0794 | 672.0230 Base Camera Pole 30-FT | 1.000 EACH | | . | | . |
| 0795 | 672.0250 Base Camera Pole 50-FT | 6.000 EACH | | . | | . |
| 0796 | 672.0280 Base Camera Pole 80-FT | 1.000 EACH | | . | | . |
| 0797 | 673.0105 Communication Vault Type 1 | 28.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0798 | 673.0200.S Install ITS Field Cabinet | 5.000 EACH | | . | | . |
| 0799 | 673.0225.S Install Pole Mounted Cabinet | 16.000 EACH | | . | | . |
| 0800 | 674.0200 Cable Microwave Detector | 18,856.000 LF | | . | | . |
| 0801 | 674.0300 Remove Cable | 21,755.000 LF | | . | | . |
| 0802 | 675.0100 Install Controller Ramp Meter Processor Assembly | 3.000 EACH | | . | | . |
| 0803 | 675.0300 Install Mounted Controller Microwave Detector Assembly | 50.000 EACH | | . | | . |
| 0804 | 675.0400.S Install Ethernet Switch | 17.000 EACH | | . | | . |
| 0805 | 676.0100 Signal Assembly Ramp Control Sidemount | 4.000 EACH | | . | | . |
| 0806 | 676.0105 Signal Assembly Ramp Control Overhead | 11.000 EACH | | . | | . |
| 0807 | 676.0300 Signal Assembly Advance Flasher Type 1 | 5.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0808 | 676.0305 Signal Assembly Advance Flasher Type 2 | 1.000 EACH | | . | | . |
| 0809 | 676.9001.S Removing Advance Flasher Assemblies Type 1 | 7.000 EACH | | . | | . |
| 0810 | 677.0100 Install Camera Pole | 7.000 EACH | | . | | . |
| 0811 | 677.0200 Install Camera Assembly | 9.000 EACH | | . | | . |
| 0812 | 677.9051.S Removing 50-FT Camera Pole | 3.000 EACH | | . | | . |
| 0813 | 677.9200.S Removing CCTV Camera | 3.000 EACH | | . | | . |
| 0814 | 678.0006 Install Fiber Optic Cable Outdoor Plant 6-CT | 15,125.000 LF | | . | | . |
| 0815 | 678.0072 Install Fiber Optic Cable Outdoor Plant 72-CT | 46,700.000 LF | | . | | . |
| 0816 | 678.0300 Fiber Optic Splice | 738.000 EACH | | . | | . |
| 0817 | 678.0400 Fiber Optic Termination | 120.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0818 | 678.0500 Communication System Testing 2001. FTMS | LUMP | LUMP | | | . |
| 0819 | 678.0500 Communication System Testing 2021. FTMS | LUMP | LUMP | | | . |
| 0820 | 678.0500 Communication System Testing 3001. Wisconsin Avenue Corridor | LUMP | LUMP | | | . |
| 0821 | 690.0150 Sawing Asphalt | 26,418.000 LF | . | | | . |
| 0822 | 690.0250 Sawing Concrete | 23,321.000 LF | . | | | . |
| 0823 | 715.0502 Incentive Strength Concrete Structures | 391,048.000 DOL | 1.00000 | | 391048.00 | |
| 0824 | ASP.1T0A On-the-Job Training Apprentice at $5.00/HR | 22,500.000 HRS | 5.00000 | | 112500.00 | |
| 0825 | ASP.1T0G On-the-Job Training Graduate at $5.00/HR | 22,500.000 HRS | 5.00000 | | 112500.00 | |
| 0826 | SPV.0005 Special 0001. Rootstock Protection | 0.100 ACRE | . | | | . |
| 0827 | SPV.0035 Special 0100. EBS Excavation | 14,792.000 CY | . | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0828 | SPV.0035 Special 0101. EBS Backfill | 14,792.000 CY | | . | | . |
| 0829 | SPV.0035 Special 0700. Excavation, Hauling, And Reuse Of Solid Waste Soil | 6,072.000 CY | | . | | . |
| 0830 | SPV.0035 Special 4000. HPC Masonry Structures **P** | 31,048.000 CY | | . | | . |
| 0831 | SPV.0035 Special 4010. Concrete Masonry Soldier Pile Footings **P** | 615.000 CY | | . | | . |
| 0832 | SPV.0035 Special 4020. Lightweight Foamed Concrete Fill Grade 1 | 7,464.000 CY | | . | | . |
| 0833 | SPV.0035 Special 4030. Lightweight Foamed Concrete Fill Grade 2 | 3,334.000 CY | | . | | . |
| 0834 | SPV.0035 Special 8001. Detention Basin Clay Lining **P** | 7,277.000 CY | | . | | . |
| 0835 | SPV.0045 Special 0100. Temporary Crosswalk/Sidewalk | 1,858.000 DAY | | . | | . |
| 0836 | SPV.0045 Special 0401. Portable Speed Trailer | 2,208.000 DAY | | . | | . |
| 0837 | SPV.0045 Special 2000. Dynamic Late Merge System | 568.000 DAY | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0838 | SPV.0045 Special 2001. Work Zone Construction Traffic Merge Warning System | 1,314.000 DAY | | . | | . |
| 0839 | SPV.0055 Special 0401. Dispute Review Board | 25,000.000 DOL | 1.00000 | | 25000.00 | |
| 0840 | SPV.0055 Special 0900. Railroad Flagging Reimbursement | 100,000.000 DOL | 1.00000 | | 100000.00 | |
| 0841 | SPV.0060 Special 0003. Exposing Existing Infrastructure Paved Area | 22.000 EACH | | . | | . |
| 0842 | SPV.0060 Special 0004. Exposing Existing Infrastructure Unpaved Area | 22.000 EACH | | . | | . |
| 0843 | SPV.0060 Special 0005. Baseline Cpm Progress Schedule | 1.000 EACH | | . | | . |
| 0844 | SPV.0060 Special 0006. Monthly Cpm Progress Schedule Updates | 31.000 EACH | | . | | . |
| 0845 | SPV.0060 Special 0010. Removing High Mast Lighting Tower Concrete Base | 7.000 EACH | | . | | . |
| 0846 | SPV.0060 Special 0011. Removing High Mast Lighting Tower | 13.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0847 | SPV.0060 Special 0013. Shallow Marsh Rootstock | 130.000 EACH | | . | | . |
| 0848 | SPV.0060 Special 0015. Removing Utility Vault | 10.000 EACH | | . | | . |
| 0849 | SPV.0060 Special 0016. Removing Old Sign Structure S-40-100 | 1.000 EACH | | . | | . |
| 0850 | SPV.0060 Special 0017. Removing Old Sign Structure S-40-133 | 1.000 EACH | | . | | . |
| 0851 | SPV.0060 Special 0018. Removing Old Sign Structure S-40-156 | 1.000 EACH | | . | | . |
| 0852 | SPV.0060 Special 0019. Removing Old Sign Structure S-40-128 | 1.000 EACH | | . | | . |
| 0853 | SPV.0060 Special 0020. Removing Old Sign Structure S-40-213 | 1.000 EACH | | . | | . |
| 0854 | SPV.0060 Special 0021. Removing Old Sign Structure S-40-214 | 1.000 EACH | | . | | . |
| 0855 | SPV.0060 Special 0023. Removing Old Sign Structure S-40-309 | 1.000 EACH | | . | | . |
| 0856 | SPV.0060 Special 0024. Removing Old Sign Structure S-40-35 | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0857 | SPV.0060 Special 0026. Removing Old Sign Structure S-40-78 | 1.000 EACH | | . | | . |
| 0858 | SPV.0060 Special 0027. Removing Old Sign Structure S-40-99 | 1.000 EACH | | . | | . |
| 0859 | SPV.0060 Special 0028. Removing Old Sign Structure S-40-995 | 1.000 EACH | | . | | . |
| 0860 | SPV.0060 Special 0029. Removing Old Sign Structure S-40-996 | 1.000 EACH | | . | | . |
| 0861 | SPV.0060 Special 0101. Temporary Bus Stop Pad | 3.000 EACH | | . | | . |
| 0862 | SPV.0060 Special 0126. Concrete Barrier Type S56A Special Light Pole Base | 7.000 EACH | | . | | . |
| 0863 | SPV.0060 Special 0127. Concrete Barrier Transition Type G1 | 1.000 EACH | | . | | . |
| 0864 | SPV.0060 Special 0128. Concrete Barrier Transition Type G2 | 1.000 EACH | | . | | . |
| 0865 | SPV.0060 Special 0129. Concrete Barrier Transition Type G3 | 1.000 EACH | | . | | . |
| 0866 | SPV.0060 Special 0130. Concrete Barrier Transition Type G4 | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0867 | SPV.0060 Special 0131. Concrete Barrier Transition Type G5 | 1.000 EACH | | . | | . |
| 0868 | SPV.0060 Special 0132. Concrete Barrier Transition Type G6 | 1.000 EACH | | . | | . |
| 0869 | SPV.0060 Special 0133. Concrete Barrier Transition Type G7 | 1.000 EACH | | . | | . |
| 0870 | SPV.0060 Special 0134. Concrete Barrier Transition Type G8 | 1.000 EACH | | . | | . |
| 0871 | SPV.0060 Special 0135. Concrete Barrier Transition Type G9 | 1.000 EACH | | . | | . |
| 0872 | SPV.0060 Special 0136. Concrete Barrier Transition Type G10 | 1.000 EACH | | . | | . |
| 0873 | SPV.0060 Special 0137. Concrete Barrier Transition Type G11 | 1.000 EACH | | . | | . |
| 0874 | SPV.0060 Special 0138. Concrete Barrier Transition Type G12 | 1.000 EACH | | . | | . |
| 0875 | SPV.0060 Special 0139. Concrete Barrier Transition Type G13 | 1.000 EACH | | . | | . |
| 0876 | SPV.0060 Special 0140. Concrete Barrier Transition Type G14 | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0877 | SPV.0060 Special 0141. Concrete Barrier Transition Type G15 | 1.000 EACH | | . | | . |
| 0878 | SPV.0060 Special 0142. Concrete Barrier Transition Type G16 | 1.000 EACH | | . | | . |
| 0879 | SPV.0060 Special 0143. Concrete Barrier Transition Type G17 | 1.000 EACH | | . | | . |
| 0880 | SPV.0060 Special 0144. Concrete Barrier Transition Type G18 | 1.000 EACH | | . | | . |
| 0881 | SPV.0060 Special 0145. Concrete Barrier Transition Type G19 | 1.000 EACH | | . | | . |
| 0882 | SPV.0060 Special 0150. Concrete Barrier Transition Type M1 | 1.000 EACH | | . | | . |
| 0883 | SPV.0060 Special 0151. Concrete Barrier Transition Type M2 | 1.000 EACH | | . | | . |
| 0884 | SPV.0060 Special 0152. Concrete Barrier Transition Type M3 | 1.000 EACH | | . | | . |
| 0885 | SPV.0060 Special 0153. Concrete Barrier Transition Type M4 | 1.000 EACH | | . | | . |
| 0886 | SPV.0060 Special 0154. Concrete Barrier Transition Type M5 | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0887 | SPV.0060 Special 0155. Concrete Barrier Transition Type M6 | 2.000 EACH | | . | | . |
| 0888 | SPV.0060 Special 0160. Concrete Barrier Type S32 End Anchor | 21.000 EACH | | . | | . |
| 0889 | SPV.0060 Special 0162. Concrete Barrier Type S42 End Anchor | 232.000 EACH | | . | | . |
| 0890 | SPV.0060 Special 0164. Concrete Barrier Type S56 End Anchor | 4.000 EACH | | . | | . |
| 0891 | SPV.0060 Special 0166. Concrete Barrier Type S56 Special End Anchor | 1.000 EACH | | . | | . |
| 0892 | SPV.0060 Special 0168. Concrete Barrier Type S56A Special End Anchor | 14.000 EACH | | . | | . |
| 0893 | SPV.0060 Special 0190. Section Corner Monuments Special | 4.000 EACH | | . | | . |
| 0894 | SPV.0060 Special 0302. Pvmnt Marking Contrast Grooved Pre formed Thermoplstc Arrows Type 2 **P** | 17.000 EACH | | . | | . |
| 0895 | SPV.0060 Special 0304. Pvmnt Marking Contrast Grooved Pre formed Thermoplastic Arrows Type 3 **P** | 11.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0896 | SPV.0060 Special 0306. Pavement Marking Contrast Grooved Preformed Thermoplastic Arrows Type 4 | 3.000 EACH | | . | | . |
| 0897 | SPV.0060 Special 0308. Pvmnt Marking Contrast Grooved Pre formed Thermoplastic Arrows Type 5 **P** | 22.000 EACH | | . | | . |
| 0898 | SPV.0060 Special 0310. Pavement Marking Contrast Grooved Preformed Thermoplastic Words | 4.000 EACH | | . | | . |
| 0899 | SPV.0060 Special 0320. Install Temporary Pavement Marking Orange Arrows | 4.000 EACH | | . | | . |
| 0900 | SPV.0060 Special 0322. Truck Cleanout Of Pavement Marking Orange Epoxy | 6.000 EACH | | . | | . |
| 0901 | SPV.0060 Special 0400. Traffic Control Close-Open Freeway Entrance Ramp | 1,200.000 EACH | | . | | . |
| 0902 | SPV.0060 Special 0401. Traffic Control Close-Open Freeway To Freeway System Ramp | 900.000 EACH | | . | | . |
| 0903 | SPV.0060 Special 0402. Traffic Control Interim Freeway Lane Closure | 3,400.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0904 | SPV.0060 Special 0403. Traffic Control Local Road Lane Closures | 50.000 EACH | | . | | . |
| 0905 | SPV.0060 Special 0405. Temporary Sign Portable Support | 15.000 EACH | | . | | . |
| 0906 | SPV.0060 Special 0406. Mobilizations Emergency Pavement Repair | 21.000 EACH | | . | | . |
| 0907 | SPV.0060 Special 0408. Traffic Control Full Freeway Closure | 420.000 EACH | | . | | . |
| 0908 | SPV.0060 Special 0410. Maintaining Signs Fixed Message | 134.000 EACH | | . | | . |
| 0909 | SPV.0060 Special 0412. Maintaining Traffic Control Covering Signs Type 1 | 32.000 EACH | | . | | . |
| 0910 | SPV.0060 Special 0414. Permanent Barricades Type III | 3.000 EACH | | . | | . |
| 0911 | SPV.0060 Special 0416. Sign Support Special Mounting | 54.000 EACH | | . | | . |
| 0912 | SPV.0060 Special 0420. Dynamic Speed Display Sign | 4.000 EACH | | . | | . |
| 0913 | SPV.0060 Special 0422. Moving Dynamic Speed Display Sign | 4.000 EACH | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0914 | SPV.0060 Special 0606. Gates Decorative HAST Ground Mounted 12-Ft | 1.000 EACH | | . | | . |
| 0915 | SPV.0060 Special 0608. Gates decorative HAST Ground Mounted 30-Ft | 1.000 EACH | | . | | . |
| 0916 | SPV.0060 Special 1010. Lamp Disposal High Intensity Discharge | 290.000 EACH | | . | | . |
| 0917 | SPV.0060 Special 1019. Relocating Light Poles, Arms and Luminaires | 6.000 EACH | | . | | . |
| 0918 | SPV.0060 Special 1031. Removing Aluminum Light Poles And Arms-Wauwatosa | 3.000 EACH | | . | | . |
| 0919 | SPV.0060 Special 1032. Removing Concrete Light Poles And Arms-Wauwatosa | 6.000 EACH | | . | | . |
| 0920 | SPV.0060 Special 1033. Removing Aluminum Light Poles, Arms And Luminaires | 111.000 EACH | | . | | . |
| 0921 | SPV.0060 Special 1035. Wood Pole Lighting 60-Ft | 104.000 EACH | | . | | . |
| 0922 | SPV.0060 Special 1036. Poles Wood 60-Ft | 24.000 EACH | | . | | . |
| 0923 | SPV.0060 Special 1037. Poles Wood 35-Ft | 42.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0924 | SPV.0060 Special 1040. Removing Poles Wood 60-Ft And Floodlights | 154.000 EACH | | . | | . |
| 0925 | SPV.0060 Special 1041. Removing Poles Wood 60-Ft | 47.000 EACH | | . | | . |
| 0926 | SPV.0060 Special 1042. Removing Poles Wood 35-Foot | 18.000 EACH | | . | | . |
| 0927 | SPV.0060 Special 1043. Removing Poles Wood 35-Ft And Floodlights | 24.000 EACH | | . | | . |
| 0928 | SPV.0060 Special 1050. Tunnel Luminaire | 319.000 EACH | | . | | . |
| 0929 | SPV.0060 Special 1051. Lighting Control Cabinet Tunnel Lighting | 2.000 EACH | | . | | . |
| 0930 | SPV.0060 Special 1052. Brackets Tunnel Lighting | 44.000 EACH | | . | | . |
| 0931 | SPV.0060 Special 1056. Junction Boxes Steel 18X12X6-Inch Coated | 19.000 EACH | | . | | . |
| 0932 | SPV.0060 Special 1065. Luminaire Utility LED E | 1.000 EACH | | . | | . |
| 0933 | SPV.0060 Special 1066. Salvaging Luminaire LED - DOT | 6.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0934 | SPV.0060 Special 1070. Luminaires Floodlight 1000W HPS | 94.000 EACH | | . | | . |
| 0935 | SPV.0060 Special 1071. Luminaires Floodlight 400W HPS | 67.000 EACH | | . | | . |
| 0936 | SPV.0060 Special 1078. Luminaire (UDL) Wallpack Led | 32.000 EACH | | . | | . |
| 0937 | SPV.0060 Special 1079. Luminaire (UDL) Wallpack LED-West Allis | 9.000 EACH | | . | | . |
| 0938 | SPV.0060 Special 1090. Salvage Lighting Control Cabinets | 11.000 EACH | | . | | . |
| 0939 | SPV.0060 Special 1100. Lighting Control Cabinet 480/277 VAC | 1.000 EACH | | . | | . |
| 0940 | SPV.0060 Special 1102. Lighting Control Cabinet With FTMS Power 480/277 VAC | 2.000 EACH | | . | | . |
| 0941 | SPV.0060 Special 1125. Poles Mount For Probeam Luminaire | 32.000 EACH | | . | | . |
| 0942 | SPV.0060 Special 1126. Concrete Bases Type 10P | 25.000 EACH | | . | | . |
| 0943 | SPV.0060 Special 1127. Probeam Luminaire | 33.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0944 | SPV.0060 Special 1128. Pole 13-Foot For Probeam Luminaire | 1.000 EACH | | . | | . |
| 0945 | SPV.0060 Special 1130. Poles Aluminum Type F | 8.000 EACH | | . | | . |
| 0946 | SPV.0060 Special 1131. Concrete Bases Type B | 104.000 EACH | | . | | . |
| 0947 | SPV.0060 Special 1153. Removing Electrical Service Meter Breaker Pedestal Lighting | 7.000 EACH | | . | | . |
| 0948 | SPV.0060 Special 2001. Ground Rod | 37.000 EACH | | . | | . |
| 0949 | SPV.0060 Special 2002. Removing Ramp Control Signal Assembly Sidemount | 10.000 EACH | | . | | . |
| 0950 | SPV.0060 Special 2003. Removing Controller Cabinet | 5.000 EACH | | . | | . |
| 0951 | SPV.0060 Special 2004. Removing Controller Cabinet Base | 7.000 EACH | | . | | . |
| 0952 | SPV.0060 Special 2005. Removing Controller Ramp Meter Processer Assembly | 1.000 EACH | | . | | . |
| 0953 | SPV.0060 Special 2006. Removing Electrical Service Meter Breaker Pedestal | 4.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0954 | SPV.0060 Special 2007. Removing Communication Vault | 2.000 EACH | | . | | . |
| 0955 | SPV.0060 Special 2008. Install 80-ft Camera Pole | 1.000 EACH | | . | | . |
| 0956 | SPV.0060 Special 2009. Removing Microwave Detector Assembly | 2.000 EACH | | . | | . |
| 0957 | SPV.0060 Special 2010. Installl Portable Video Surveillance System | 1.000 EACH | | . | | . |
| 0958 | SPV.0060 Special 2011. Relocating Portable Video Surveillance System | 4.000 EACH | | . | | . |
| 0959 | SPV.0060 Special 2012. Install Temporary Vehicle Detector Assembly | 7.000 EACH | | . | | . |
| 0960 | SPV.0060 Special 2013. Refocusing Vehicle Detector Assembly | 57.000 EACH | | . | | . |
| 0961 | SPV.0060 Special 2014. Removing Temporary Vehicle Detector Assembly | 18.000 EACH | | . | | . |
| 0962 | SPV.0060 Special 2015. Relocating Temporary Vehicle Detector Assembly | 6.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0963 | SPV.0060 Special 2016. Removing Electronic Blank Out Sign Assembly | 1.000 EACH | | . | | . |
| 0964 | SPV.0060 Special 2017. Install Antenna | 2.000 EACH | | . | | . |
| 0965 | SPV.0060 Special 2018. Install Wireless Modem | 3.000 EACH | | . | | . |
| 0966 | SPV.0060 Special 2019. Removing Wireless Modem | 1.000 EACH | | . | | . |
| 0967 | SPV.0060 Special 2020. Salvage Microwave Detector Assembly | 2.000 EACH | | . | | . |
| 0968 | SPV.0060 Special 2021. Install Salvaged Microwave Detector Assembly | 2.000 EACH | | . | | . |
| 0969 | SPV.0060 Special 2022. Salvage Wireless Traffic Sensor Repeater | 1.000 EACH | | . | | . |
| 0970 | SPV.0060 Special 2023. Install Wireless Traffic Sensor Repeater | 1.000 EACH | | . | | . |
| 0971 | SPV.0060 Special 2024. Salvage Poles Type 5 | 1.000 EACH | | . | | . |
| 0972 | SPV.0060 Special 2025. Installed Salvaged Poles Type 5 | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0973 | SPV.0060 Special 2026. Install Conduit Into Buried Vault | 1.000 EACH | | . | | . |
| 0974 | SPV.0060 Special 2027. Install Temporary Traffic Camera Assembly | 2.000 EACH | | . | | . |
| 0975 | SPV.0060 Special 2028. Temporary Poles Wood 40-Foot | 7.000 EACH | | . | | . |
| 0976 | SPV.0060 Special 2029. Install 5.8 GHz Ethernet Bridge | 2.000 EACH | | . | | . |
| 0977 | SPV.0060 Special 2030. Install Cabinet Heater And Thermostat | 5.000 EACH | | . | | . |
| 0978 | SPV.0060 Special 2031. Install Wavetronix Click 200 Module | 9.000 EACH | | . | | . |
| 0979 | SPV.0060 Special 2032. Install Wavetronix Power Module | 9.000 EACH | | . | | . |
| 0980 | SPV.0060 Special 2033. Install Wavetronix Detector Module | 9.000 EACH | | . | | . |
| 0981 | SPV.0060 Special 2034. Install Cellular Antenna | 9.000 EACH | | . | | . |
| 0982 | SPV.0060 Special 2035. Install Piezoelectric Axle Sensor | 8.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0983 | SPV.0060 Special 2037. Concrete Control Cabinet Base ATR Special Type 7 | 1.000 EACH | | . | | . |
| 0984 | SPV.0060 Special 2038. Install ATR Controller Cabinet | 1.000 EACH | | . | | . |
| 0985 | SPV.0060 Special 2040. Wireless Traffic Sensor | 12.000 EACH | | . | | . |
| 0986 | SPV.0060 Special 2042. Wireless Traffic Sensor Repeater | 1.000 EACH | | . | | . |
| 0987 | SPV.0060 Special 2043. Wireless Traffic Sensor Contact Closure Module | 1.000 EACH | | . | | . |
| 0988 | SPV.0060 Special 2044. Wireless Traffic Sensor Contact Closure Extension Card | 3.000 EACH | | . | | . |
| 0989 | SPV.0060 Special 2045. Removing Temporary Traffic Camera Assembly | 2.000 EACH | | . | | . |
| 0990 | SPV.0060 Special 2050. INSTALL FIBER OPTIC MEDIA CONVERTER | 2.000 EACH | | . | | . |
| 0991 | SPV.0060 Special 2052. Multi-cell Conduit Connection | 1.000 EACH | | . | | . |
| 0992 | SPV.0060 Special 3001. Supplemental Traffic Signal Cabinet Concrete Base | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0993 | SPV.0060 Special 3101. Install Traffic Cabinet Base | 1.000 EACH | | . | | . |
| 0994 | SPV.0060 Special 3102. Install Traffic Signal Base | 11.000 EACH | | . | | . |
| 0995 | SPV.0060 Special 3103. Traffic Polymer Concrete Vault 13-In X 24-In X 18-In | 6.000 EACH | | . | | . |
| 0996 | SPV.0060 Special 3104. Traffic Polymer Concrete Vault 17-In X 30-In X 18-In | 5.000 EACH | | . | | . |
| 0997 | SPV.0060 Special 4100. Anchor Assemblies Sign Bridge Structures | 8.000 EACH | | . | | . |
| 0998 | SPV.0060 Special 4105. Anchor Assemblies Noise Barrier Structures | 696.000 EACH | | . | | . |
| 0999 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 95.000 EACH | | . | | . |
| 1000 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 95.000 EACH | | . | | . |
| 1001 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 54.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1002 | SPV.0060 Special 4120. Bearings High-Load Multi-Rotational Fixed | 32.000 EACH | | . | | . |
| 1003 | SPV.0060 Special 4125. Bearings High-Load Multi-Rotational Guided | 78.000 EACH | | . | | . |
| 1004 | SPV.0060 Special 4130. Floor Drain Special | 32.000 EACH | | . | | . |
| 1005 | SPV.0060 Special 4135. Anchor Slab Inlet Cover Special | 38.000 EACH | | . | | . |
| 1006 | SPV.0060 Special 4140. Tieback Anchors | 115.000 EACH | | . | | . |
| 1007 | SPV.0060 Special 4145. Tieback Anchors Performance Tests | 7.000 EACH | | . | | . |
| 1008 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 12.000 EACH | | . | | . |
| 1009 | SPV.0060 Special 4155. Tip Testing Drilled Foundation Shaft 59. 06-Inch | 12.000 EACH | | . | | . |
| 1010 | SPV.0060 Special 4165. Thermal Integrity Profiler (Tip) Testing Wall Secant Pile 47. 24-Inch | 6.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1011 | SPV.0060 Special 4170. Polymer Concrete Pull Boxes 13X24X18-Inch | 3.000 EACH | | . | | . |
| 1012 | SPV.0060 Special 4175. Concrete Base Sleeves | 3.000 EACH | | . | | . |
| 1013 | SPV.0060 Special 4180. Bar Couplers No. 14 | 330.000 EACH | | . | | . |
| 1014 | SPV.0060 Special 4185. Temporary Access Gates | 2.000 EACH | | . | | . |
| 1015 | SPV.0060 Special 5000. Permanent Connection To Existing 24-Inch Water Main | 2.000 EACH | | . | | . |
| 1016 | SPV.0060 Special 5001. Adjusting Water Valve Wauwatosa | 5.000 EACH | | . | | . |
| 1017 | SPV.0060 Special 5002. Adjusting Water Valve Milwaukee | 2.000 EACH | | . | | . |
| 1018 | SPV.0060 Special 5003. Adjusting Water Valve West Allis | 9.000 EACH | | . | | . |
| 1019 | SPV.0060 Special 5004. Cut And Cap Water Main | 2.000 EACH | | . | | . |
| 1020 | SPV.0060 Special 5005. Air Release Valve | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1021 | SPV.0060 Special 5006. Abandoning Air Release Manhole | 1.000 EACH | | . | | . |
| 1022 | SPV.0060 Special 5007. Hydrant Assembly Relocation | 1.000 EACH | | . | | . |
| 1023 | SPV.0060 Special 5008. Relocate Hydrant | 2.000 EACH | | . | | . |
| 1024 | SPV.0060 Special 5101. MMSD Sanitary Manhole Precast | 2.000 EACH | | . | | . |
| 1025 | SPV.0060 Special 5102. MMSD Sanitary Manhole Reconstruct | 2.000 EACH | | . | | . |
| 1026 | SPV.0060 Special 5103. MMSD Sanitary Manhole Extension | 1.000 EACH | | . | | . |
| 1027 | SPV.0060 Special 5104. MMSD Manhole Rehabilitation With Pure Fused Calcium Aluminate Coatings | 1.000 EACH | | . | | . |
| 1028 | SPV.0060 Special 5105. Removing MMSD Sanitary Manhole | 1.000 EACH | | . | | . |
| 1029 | SPV.0060 Special 5106. Abandoning MMSD Sanitary Manhole With Concrete Cap | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1030 | SPV.0060 Special 5200. Adjusting Sanitary Manhole | 11.000 EACH | | . | | . |
| 1031 | SPV.0060 Special 5201. Reconstruct Sanitary Manhole | 4.000 EACH | | . | | . |
| 1032 | SPV.0060 Special 6000. Indigo, Wild #1 Cont | 3.000 EACH | | . | | . |
| 1033 | SPV.0060 Special 6001. Catmint, Walkers Low #1 Cont | 11.000 EACH | | . | | . |
| 1034 | SPV.0060 Special 6002. Coneflower, Magnus Purple #1 Cont | 23.000 EACH | | . | | . |
| 1035 | SPV.0060 Special 6003. Daylily, Romantic Returns #1 Cont | 29.000 EACH | | . | | . |
| 1036 | SPV.0060 Special 6004. Grass, Karl Forester #1 Cont | 10.000 EACH | | . | | . |
| 1037 | SPV.0060 Special 6005. Grass, Overdam Feather Reed #1 Cont | 7.000 EACH | | . | | . |
| 1038 | SPV.0060 Special 6006. Grass, Northwind Switch #1 Cont | 19.000 EACH | | . | | . |
| 1039 | SPV.0060 Special 6007. Grass, Prairie Dropseed #1 Cont | 17.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1040 | SPV.0060 Special 6008. Penstemon, Husker Red #1 Cont | 6.000 EACH | | . | | . |
| 1041 | SPV.0060 Special 6009. Sage, Caradonna Meadow #1 Cont | 22.000 EACH | | . | | . |
| 1042 | SPV.0060 Special 6010. Sage, Russian #1 Cont | 9.000 EACH | | . | | . |
| 1043 | SPV.0060 Special 6011. Sunflower, False #1 Cont | 12.000 EACH | | . | | . |
| 1044 | SPV.0060 Special 6012. Weed, Chocolate Joe - Pye #1 Cont | 6.000 EACH | | . | | . |
| 1045 | SPV.0060 Special 8002. Southwest Core Pond Outlet Storm Sewer Structure | 1.000 EACH | | . | | . |
| 1046 | SPV.0060 Special 8004. Inlet Covers Type 57 | 5.000 EACH | | . | | . |
| 1047 | SPV.0060 Special 8005. Cover Plates Left In Place | 5.000 EACH | | . | | . |
| 1048 | SPV.0060 Special 8007. Reconnect Storm Sewer Laterals | 10.000 EACH | | . | | . |
| 1049 | SPV.0060 Special 8012. Manholes 9-Ft Special | 4.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1050 | SPV.0060 Special 8013. Manholes 10-Ft Special | 3.000 EACH | | . | | . |
| 1051 | SPV.0060 Special 8015. Pipe Connection To Existing Structure | 30.000 EACH | | . | | . |
| 1052 | SPV.0060 Special 8018. Removing Bulkhead | 38.000 EACH | | . | | . |
| 1053 | SPV.0060 Special 8050. Inlet Covers Type 27-M Bolted | 135.000 EACH | | . | | . |
| 1054 | SPV.0060 Special 8052. Removing Welds from Sewer Access Covers | 10.000 EACH | | . | | . |
| 1055 | SPV.0060 Special 8062. Remove And Cap Existing Drainage Storm Sewer Structure | 18.000 EACH | | . | | . |
| 1056 | SPV.0060 Special 8065. Removing Cover Plates Left In Place | 55.000 EACH | | . | | . |
| 1057 | SPV.0060 Special 8080. Welding Sewer Access Covers | 20.000 EACH | | . | | . |
| 1058 | SPV.0060 Special 8099. Intermediate Jacking Stations | 4.000 EACH | | . | | . |
| 1059 | SPV.0060 Special 8502. Storm Sewer Structure Z4235 | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1060 | SPV.0060 Special 8503. Storm Sewer Structure Z4121 | 1.000 EACH | | . | | . |
| 1061 | SPV.0060 Special 8504. Storm Sewer Structure Z4192 | 1.000 EACH | | . | | . |
| 1062 | SPV.0060 Special 8505. Storm Sewer Structure Z4133 | 1.000 EACH | | . | | . |
| 1063 | SPV.0075 Special 0002. Pavement Cleanup Project 1060-33-81 | 2,000.000 HRS | | . | | . |
| 1064 | SPV.0075 Special 0003. Pavement Cleanup Project 1060-34-82 | 100.000 HRS | | . | | . |
| 1065 | SPV.0075 Special 0010. Obstructions Trenchless Utility Construction | 24.000 HRS | | . | | . |
| 1066 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 48.000 HRS | | . | | . |
| 1067 | SPV.0075 Special 4205. Obstructions Wall Secant Pile | 10.000 HRS | | . | | . |
| 1068 | SPV.0075 Special 4210. Obstructions Foundation Drilling | 33.000 HRS | | . | | . |
| 1069 | SPV.0075 Special 4215. Obstructions Sign Supports Concrete Masonry | 65.000 HRS | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1070 | SPV.0075 Special 8097. Obstructions Tunnel Excavation | 66.000 HRS | . | | . | |
| 1071 | SPV.0085 Special 0900. Ice HPC Hot Weather Concreting | 3,125,041 LB | 0.75000 | | 2343780.75 | |
| 1072 | SPV.0085 Special 4310. Post-Tensioning Integral Pier Cap | 12,120.000 LB | . | | . | |
| 1073 | SPV.0090 Special 0010. Removing Pavement Markings Water Blasting | 342,715.000 LF | . | | . | |
| 1074 | SPV.0090 Special 0011. Removing Concrete Barrier Precast | 4,786.000 LF | . | | . | |
| 1075 | SPV.0090 Special 0014. Removing Reinforced Concrete Pipe | 298.000 LF | . | | . | |
| 1076 | SPV.0090 Special 0015. Removing Steel Pipe | 765.000 LF | . | | . | |
| 1077 | SPV.0090 Special 0016. Removing Miscellaneous Pipe | 167.000 LF | . | | . | |
| 1078 | SPV.0090 Special 0029. Fence Screening | 364.000 LF | . | | . | |
| 1079 | SPV.0090 Special 0100. Concrete Barrier Type S42C With 48-Inch Pan **P** | 461.000 LF | . | | . | |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1080 | SPV.0090 Special 0101. Concrete Barrier Type S56 Special **P** | 146.000 LF | | . | | . |
| 1081 | SPV.0090 Special 0102. Concrete Barrier Type S56A Special **P** | 1,021.000 LF | | . | | . |
| 1082 | SPV.0090 Special 0103. Concrete Barrier Type S42 With 24-Inch Pan **P** | 5,518.000 LF | | . | | . |
| 1083 | SPV.0090 Special 0104. Concrete Barrier Vertical Back Type S42 Modified With 24-Inch Pan **P** | 365.000 LF | | . | | . |
| 1084 | SPV.0090 Special 0105. Concrete Barrier Vertical Back Type S56 Modified With 24-Inch Pan **P** | 64.000 LF | | . | | . |
| 1085 | SPV.0090 Special 0106. Concrete Barrier Vertical Back Type S56 Modified **P** | 210.000 LF | | . | | . |
| 1086 | SPV.0090 Special 0108. Concrete Barrier Type S32C **P** | 134.000 LF | | . | | . |
| 1087 | SPV.0090 Special 0110. Concrete Barrier Type S32 With 24-Inch Pan **P** | 190.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1088 | SPV.0090 Special 0112. Concrete Barrier Type S42 With 48-Inch Pan **P** | 695.000 LF | | . | | . |
| 1089 | SPV.0090 Special 0124. Maintain And Remove Concrete Barrier Temporary Precast | 54,736.000 LF | | . | | . |
| 1090 | SPV.0090 Special 0126. Pipe Underdrain 6-Inch Special | 91,278.000 LF | | . | | . |
| 1091 | SPV.0090 Special 0152. Concrete Curb & Gutter 4-Inch Sloped 60-Inch Type A **P** | 2,554.000 LF | | . | | . |
| 1092 | SPV.0090 Special 0153. Concrete Gutter 42-Inch **P** | 710.000 LF | | . | | . |
| 1093 | SPV.0090 Special 0154. Concrete Gutter 48-Inch **P** | 2,277.000 LF | | . | | . |
| 1094 | SPV.0090 Special 0155. Concrete Gutter 66-Inch **P** | 420.000 LF | | . | | . |
| 1095 | SPV.0090 Special 0300. Pavement Marking Grooved Preformed Thermoplastic Stop Line, 18-Inch | 241.000 LF | | . | | . |
| 1096 | SPV.0090 Special 0301. Pavement Marking Grooved Preformed Thermoplastic Stop Line, 24-Inch | 266.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1097 | SPV.0090 Special 0302. Pavement Marking Grooved Preformed Thermoplastic Crosswalk, 6-Inch | 1,823.000 LF | | . | | . |
| 1098 | SPV.0090 Special 0320. Install Temporary Pavement Marking Reflective Orange Paint 4-Inch | 286,275.000 LF | | . | | . |
| 1099 | SPV.0090 Special 0322. Install Temporary Pavement Marking Reflective Orange Paint 8-Inch | 16,385.000 LF | | . | | . |
| 1100 | SPV.0090 Special 0324. Install Temporary Pavement Marking Reflective Orange Paint 24-Inch | 505.000 LF | | . | | . |
| 1101 | SPV.0090 Special 0326. Install Temporary Pavement Marking Orange Epoxy 4-Inch | 191,630.000 LF | | . | | . |
| 1102 | SPV.0090 Special 0328. Install Temporary Pavement Marking Orange Epoxy 8-Inch | 9,645.000 LF | | . | | . |
| 1103 | SPV.0090 Special 0400. Glare Screens Temporary | 26,850.000 LF | | . | | . |
| 1104 | SPV.0090 Special 0410. Concrete Barrier Temporary Precast Anchoring | 4,925.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1105 | SPV.0090 Special 0412. Concrete Barrier Temporary Precast Anchored On Bridge | 775.000 LF | | . | | . |
| 1106 | SPV.0090 Special 0414. Concrete Barrier Temporary Precast Anchored On Asphaltic Bridge Overlay | 363.000 LF | | . | | . |
| 1107 | SPV.0090 Special 0600. Fence Temporary 6-Ft | 417.000 LF | | . | | . |
| 1108 | SPV.0090 Special 0605. Fence Decorative Hast Ground Mounted | 1,307.000 LF | | . | | . |
| 1109 | SPV.0090 Special 0610. Fence Chain Link Vinyl Coated 6-Ft | 426.000 LF | | . | | . |
| 1110 | SPV.0090 Special 0901. Minor Retaining Wall R-2 | 177.000 LF | | . | | . |
| 1111 | SPV.0090 Special 1005. Cable Aerial Aluminum 6 AWG Quadruplex | 13,459.000 LF | | . | | . |
| 1112 | SPV.0090 Special 1006. Cable Aerial Aluminum 4 AWG Quadruplex | 9,366.000 LF | | . | | . |
| 1113 | SPV.0090 Special 1007. Cable Aerial Aluminum 2 AWG Quadruplex | 4,850.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1114 | SPV.0090 Special 1008. Cable Aerial Aluminum 1/0 AWG Quadruplex | 3,788.000 LF | | . | | . |
| 1115 | SPV.0090 Special 1026. Cable In Duct 5-6 AWG | 26,403.000 LF | | . | | . |
| 1116 | SPV.0090 Special 1027. Conduit Reinforced Thermosetting Resin 3/4-Inch | 460.000 LF | | . | | . |
| 1117 | SPV.0090 Special 1053. Liquidtight Flexible Metallic Conduit 3/4-Inch | 2,718.000 LF | | . | | . |
| 1118 | SPV.0090 Special 1054. Wireway Fiberglass 4-Inch X 4-Inch | 427.000 LF | | . | | . |
| 1119 | SPV.0090 Special 1055. Wireway Fiberglass 2. 5-Inch X 2.5-Inch | 427.000 LF | | . | | . |
| 1120 | SPV.0090 Special 2001. Install Piezoelectric Axle Sensor Slots | 90.000 LF | | . | | . |
| 1121 | SPV.0090 Special 2002. Loop Detector Lead In Cable Special | 2,260.000 LF | | . | | . |
| 1122 | SPV.0090 Special 4400. Fence Decorative Bridge | 471.000 LF | | . | | . |
| 1123 | SPV.0090 Special 4410. Fence Decorative Wall | 530.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1124 | SPV.0090 Special 4411. Fence Decorative Hast Wall Mounted | 232.000 LF | | . | | . |
| 1125 | SPV.0090 Special 4415. Piling Sleeves | 2,407.000 LF | | . | | . |
| 1126 | SPV.0090 Special 4420. Foundation Drilling Special | 5,495.000 LF | | . | | . |
| 1127 | SPV.0090 Special 4425. Wall Secant Pile 47. 24-Inch | 1,680.000 LF | | . | | . |
| 1128 | SPV.0090 Special 4430. Drilled Foundation Shaft 59.06-Inch | 915.000 LF | | . | | . |
| 1129 | SPV.0090 Special 4450. Removing Temporary Shoring Left In Place | 814.000 LF | | . | | . |
| 1130 | SPV.0090 Special 4455. Fence Chain Link Vinyl Coated 2.75-Ft | 31.000 LF | | . | | . |
| 1131 | SPV.0090 Special 4460. Piling CIP Concrete 16 X 0.5-Inch Special B-40-869 | 1,705.000 LF | | . | | . |
| 1132 | SPV.0090 Special 4465. Piling CIP Concrete 16 X 0.5-Inch Special B-40-870 | 2,400.000 LF | | . | | . |
| 1133 | SPV.0090 Special 4470. Piling Steel HP 14-Inch X 73 Lb Special B-40-882 | 1,300.000 LF | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1134 | SPV.0090 Special 4475. Piling Steel HP 14-Inch X 73 Lb Special B-40-883 | 1,200.000 LF | | . | | . |
| 1135 | SPV.0090 Special 5000. Ductile Iron (Di) Awwa C-151 Cl. 55 Water Main 24-Inch | 403.000 LF | | . | | . |
| 1136 | SPV.0090 Special 5001. Steel Casing W/ Pvc 12-Inch Carrier | 175.000 LF | | . | | . |
| 1137 | SPV.0090 Special 5002. Water Main 12-Inch Ductile Iron Excavated Backfill | 134.000 LF | | . | | . |
| 1138 | SPV.0090 Special 5003. Water Main 12-Inch Pvc Excavated Backfill | 93.000 LF | | . | | . |
| 1139 | SPV.0090 Special 5004. Remove Water Main | 136.000 LF | | . | | . |
| 1140 | SPV.0090 Special 5005. Steel Casing 30-Inch | 79.000 LF | | . | | . |
| 1141 | SPV.0090 Special 5006. Water Main 16-Inch PVC Excavated Backfill | 40.000 LF | | . | | . |
| 1142 | SPV.0090 Special 5007. Water Main 16-Inch PVC Carrier | 215.000 LF | | . | | . |
| 1143 | SPV.0090 Special 5101. Abandoning Sanitary Sewer 15-Inch | 115.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1144 | SPV.0090 Special 5102. Abandoning Sanitary Sewer 16-Inch | 7.000 LF | | . | | . |
| 1145 | SPV.0090 Special 5103. MMSD Sanitary Sewer 16-Inch PVC C905 DR18 | 17.000 LF | | . | | . |
| 1146 | SPV.0090 Special 5104. Steel Casing W/ 15-Inch Sanitary Sewer Carrier | 247.000 LF | | . | | . |
| 1147 | SPV.0090 Special 8025. Pipe Underdrain Exploration | 100.000 LF | | . | | . |
| 1148 | SPV.0090 Special 8026. Storm Sewer Lateral Exploration | 100.000 LF | | . | | . |
| 1149 | SPV.0090 Special 8030. Drain Slotted Vane Longitudinal | 2,010.000 LF | | . | | . |
| 1150 | SPV.0090 Special 8035. Drain Slotted Vane Longitudinal Temporary | 535.000 LF | | . | | . |
| 1151 | SPV.0090 Special 8090. Lining 96-Inch Reinforced Concrete Storm Sewer Pipe | 1,198.000 LF | | . | | . |
| 1152 | SPV.0090 Special 8096. Storm Sewer Construction | 2,531.000 LF | | . | | . |
| 1153 | SPV.0105 Special 0001. Survey Project 1060-33-81 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1154 | SPV.0105 Special 0002. Survey Project 1060-43-81 | LUMP | LUMP | | | . |
| 1155 | SPV.0105 Special 0003. Concrete Pavement Joint Layout | LUMP | LUMP | | | . |
| 1156 | SPV.0105 Special 0007. Survey Project 1060-34-82 | LUMP | LUMP | | | . |
| 1157 | SPV.0105 Special 0010. Removing Adler Utility Tunnel | LUMP | LUMP | | | . |
| 1158 | SPV.0105 Special 0400. Moving Sign Bridge Cantilevered S-40-128 | LUMP | LUMP | | | . |
| 1159 | SPV.0105 Special 1006. Maintenance of Lighting Systems | LUMP | LUMP | | | . |
| 1160 | SPV.0105 Special 1007. Lighting System Integrator | LUMP | LUMP | | | . |
| 1161 | SPV.0105 Special 3001. Transp And Inst S-F Adaptive Traf Sig Equip W. Wisconsin Ave & N. 95Th St | LUMP | LUMP | | | . |
| 1162 | SPV.0105 Special 3002. Install Fiber Optic Comm In Cabinet W. Wisconsin Ave & N. 95Th St | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1163 | SPV.0105 Special 3101. Transp Signal And Lighting Materials W. Wisconsin Ave & N. 95Th St | LUMP | LUMP | | | . |
| 1164 | SPV.0105 Special 4525. Trial Secant Wall Panel 47.24-Inch | LUMP | LUMP | | | . |
| 1165 | SPV.0105 Special 4530. Expansion Device Modular LRFD B-40-786 | LUMP | LUMP | | | . |
| 1166 | SPV.0105 Special 4535. Expansion Device Modular LRFD B-40-787 | LUMP | LUMP | | | . |
| 1167 | SPV.0105 Special 4540. Expansion Device Modular LRFD B-40-853 | LUMP | LUMP | | | . |
| 1168 | SPV.0105 Special 4545. Expansion Device Modular LRFD B-40-854 | LUMP | LUMP | | | . |
| 1169 | SPV.0105 Special 4550. Expansion Device Modular LRFD B-40-856 | LUMP | LUMP | | | . |
| 1170 | SPV.0105 Special 4560. Vibration Control And Monitoring 96-Inch Storm Sewer | LUMP | LUMP | | | . |
| 1171 | SPV.0105 Special 4565. Galvanized Steel Grating | LUMP | LUMP | | | . |
| 1172 | SPV.0105 Special 4570. Metalizing B-40-787 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1173 | SPV.0105 Special 5000. State-Furnished Water Booster Station | LUMP | LUMP | | | . |
| 1174 | SPV.0105 Special 5001. Abandon Temporary Connection And Existing Water Main | LUMP | LUMP | | | . |
| 1175 | SPV.0105 Special 6002. Chevron Solar Powered Sign System Assembly Ramp SW | LUMP | LUMP | | | . |
| 1176 | SPV.0105 Special 6004. Chevron Solar Powered Sign System Assembly Ramp NE | LUMP | LUMP | | | . |
| 1177 | SPV.0105 Special 6006. Chevron Solar Powered Sign System Assembly Ramp NW | LUMP | LUMP | | | . |
| 1178 | SPV.0105 Special 6008. Chevron Solar Powered Sign System Assembly WN | LUMP | LUMP | | | . |
| 1179 | SPV.0105 Special 6010. Chevron Solar Powered Sign System Assembly SE | LUMP | LUMP | | | . |
| 1180 | SPV.0105 Special 6012. Chevron Solar Powered Sign System Assembly WS | LUMP | LUMP | | | . |
| 1181 | SPV.0105 Special 8098. Control Of Water | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1182 | SPV.0105 Special 8099. Geotechnical Instrumentation | LUMP | LUMP | | | . |
| 1183 | SPV.0110 Special 4600. Timber Lagging **P** | 63.000 MBM | | . | | . |
| 1184 | SPV.0135 Special 0001. Vibration Monitoring | 455.000 MON | | . | | . |
| 1185 | SPV.0165 Special 4700. Longitudinal Grooving Bridge Deck **P** | 612,753.000 SF | | . | | . |
| 1186 | SPV.0165 Special 4710. Wall Concrete Panel Mechanically Stabilized Earth LRFD/QMP **P** | 213,181.000 SF | | . | | . |
| 1187 | SPV.0165 Special 4715. Mechanically Stabilized Earth Backfill Abutment | 10,379.000 SF | | . | | . |
| 1188 | SPV.0165 Special 4720. Wall Concrete Panel Mechanically Stabilized Earth LRFD/LFCF **P** | 14,816.000 SF | | . | | . |
| 1189 | SPV.0165 Special 4730. Wall Wire Faced Mechanically Stabilized Earth LRFD/QMP **P** | 6,853.000 SF | | . | | . |
| 1190 | SPV.0165 Special 4740. Wall Modular Block Mechanically Stabilized Earth LRFD **P** | 3,505.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1191 | SPV.0165 Special 4750. Wall Concrete Panel With Traffic Barrier Mse LRFD/QMP **P** | 28,809.000 SF | | . | | . |
| 1192 | SPV.0165 Special 4760. Wall Concrete Panel With Traffic Barrier Mse LRFD/LFCF **P** | 3,581.000 SF | | . | | . |
| 1193 | SPV.0165 Special 4770. Temp Wall Wire Faced Mechanically Stabilized Earth LRFD/QMP **P** | 11,937.000 SF | | . | | . |
| 1194 | SPV.0165 Special 4775. Temporary Shoring Railroad | 3,810.000 SF | | . | | . |
| 1195 | SPV.0165 Special 4780. Geocomposite Drain Board | 29,070.000 SF | | . | | . |
| 1196 | SPV.0165 Special 4785. Concrete Staining Previously Constructed Structure | 585,665.000 SF | | . | | . |
| 1197 | SPV.0165 Special 4786. Concrete Staining Multi-Color Previously Constructed Structure | 12,635.000 SF | | . | | . |
| 1198 | SPV.0165 Special 4790. Prestressed Precast Concrete Wall Panel **P** | 14,147.000 SF | | . | | . |
| 1199 | SPV.0165 Special 4795. Structure Waterproofing Special | 26,335.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1200 | SPV.0165 Special 8095. Shaft Excavation Support System | 9,290.000 SF | | . | | . |
| 1201 | SPV.0180 Special 0101. Joint Sealing | 4,197.000 SY | | . | | . |
| 1202 | SPV.0180 Special 0102. Concrete Pavement Repair Special | 92.000 SY | | . | | . |
| 1203 | SPV.0180 Special 0105. Concrete Pavement 12-Inch Special **P** | 420,657.000 SY | | . | | . |
| 1204 | SPV.0180 Special 0106. Asphaltic Material Binder | 24,763.000 SY | | . | | . |
| 1205 | SPV.0180 Special 0200. Topsoil Special | 376,080.000 SY | | . | | . |
| 1206 | SPV.0180 Special 0800. Geogrid Reinforcement | 15,000.000 SY | | . | | . |
| 1207 | SPV.0180 Special 0801. Soil Drying | 1,012,100 SY | | . | | . |
| 1208 | SPV.0180 Special 4800. Slope Paving Crushed Aggregate Special | 30,079.000 SY | | . | | . |
| 1209 | SPV.0195 Special 0100. Cold Patch | 50.000 TON | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1210 | SPV.0195 Special 0120. HMA Longitudinal Joint Repair | 40.000 TON | | . | | . |
| 1211 | SPV.0195 Special 0700. Management Of Solid Waste | 3,097.000 TON | | . | | . |
| 1212 | SPV.0195 Special 0801. Soil Drying Agent | 20,300.000 TON | | . | | . |
| | SECTION 0001 TOTAL | | | | | . |

SECTION 0002 B-40-786 (Option A)
ALT GROUP AA1

| | | | | | | |
|---|---|---|---|---|---|---|
| 1213 | 206.1000 Excavation for Structures Bridges (structure) 0001. B-40-786 | LUMP | LUMP | | | . |
| 1214 | 209.0100 Backfill Granular | 24.000 CY | | . | | . |
| 1215 | 502.0100 Concrete Masonry Bridges **P** | 812.000 CY | | . | | . |
| 1216 | 505.0405 Bar Steel Reinforcement HS Bridges | 260,690.000 LB | | . | | . |
| 1217 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 190,360.000 LB | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1218 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 7.000 EACH | | . | | . |
| 1219 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 7.000 EACH | | . | | . |
| 1220 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 28.000 HRS | | . | | . |
| 1221 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 523.000 LF | | . | | . |
| | SECTION 0002 TOTAL | | | | | . |

SECTION 0003 B-40-786 (Option B)
ALT GROUP AA2

| | | | | | | |
|---|---|---|---|---|---|---|
| 1222 | 206.1000 Excavation for Structures Bridges (structure) 0001. B-40-786 | LUMP | LUMP | | | . |
| 1223 | 209.0100 Backfill Granular | 62.000 CY | | . | | . |
| 1224 | 502.0100 Concrete Masonry Bridges **P** | 1,211.000 CY | | . | | . |
| 1225 | 505.0405 Bar Steel Reinforcement HS Bridges | 213,150.000 LB | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1226 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 208,610.000 LB | | . | | . |
| 1227 | 511.1200 Temporary Shoring (structure) 0001. B-40-786 | 675.000 SF | | . | | . |
| 1228 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 5,580.000 LF | | . | | . |
| 1229 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 6.000 EACH | | . | | . |
| 1230 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 6.000 EACH | | . | | . |
| 1231 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 3.000 EACH | | . | | . |
| 1232 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 4.000 EACH | | . | | . |
| 1233 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 4.000 EACH | | . | | . |
| 1234 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 16.000 HRS | | . | | . |
| 1235 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 311.000 LF | | . | | . |
| | SECTION 0003 TOTAL | | | | | . |

SECTION 0004 B-40-853 (Option A)
ALT GROUP BB1

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1236 | 206.1000 Excavation for Structures Bridges (structure) 0009. B-40-853 | LUMP | LUMP | | | . |
| 1237 | 209.0100 Backfill Granular | 40.000 CY | | . | | . |
| 1238 | 502.0100 Concrete Masonry Bridges **P** | 428.000 CY | | . | | . |
| 1239 | 505.0405 Bar Steel Reinforcement HS Bridges | 137,850.000 LB | | . | | . |
| 1240 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 100,380.000 LB | | . | | . |
| 1241 | 505.0911 Bar Couplers No. 11 | 96.000 EACH | | . | | . |
| 1242 | 511.1200 Temporary Shoring (structure) 0011. B-40-853 | 2,740.000 SF | | . | | . |
| 1243 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 5.000 EACH | | . | | . |
| 1244 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 5.000 EACH | | . | | . |
| 1245 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 20.000 HRS | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1246 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 298.000 LF | . | | . | |
| | SECTION 0004 TOTAL | | | | . | |

SECTION 0005 B-40-853 (Option B)
ALT GROUP BB2

| | | | | | | |
|---|---|---|---|---|---|---|
| 1247 | 206.1000 Excavation for Structures Bridges (structure) 0009. B-40-853 | LUMP | LUMP | | | . |
| 1248 | 209.0100 Backfill Granular | 40.000 CY | . | | . | |
| 1249 | 502.0100 Concrete Masonry Bridges **P** | 559.000 CY | . | | . | |
| 1250 | 505.0405 Bar Steel Reinforcement HS Bridges | 129,440.000 LB | . | | . | |
| 1251 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 102,550.000 LB | . | | . | |
| 1252 | 505.0911 Bar Couplers No. 11 | 96.000 EACH | . | | . | |
| 1253 | 511.1200 Temporary Shoring (structure) 0011. B-40-853 | 2,740.000 SF | . | | . | |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1254 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 1,650.000 LF | | . | | . |
| 1255 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 2.000 EACH | | . | | . |
| 1256 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 2.000 EACH | | . | | . |
| 1257 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 1.000 EACH | | . | | . |
| 1258 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 4.000 EACH | | . | | . |
| 1259 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 4.000 EACH | | . | | . |
| 1260 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 16.000 HRS | | . | | . |
| 1261 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 236.500 LF | | . | | . |
| | SECTION 0005 TOTAL | | | | | . |

SECTION 0006 B-40-854 (Option A)
ALT GROUP CC1

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1262 | 206.1000 Excavation for Structures Bridges (structure) 0010. B-40-854 | LUMP | LUMP | | | . |
| 1263 | 209.0100 Backfill Granular | 250.000 CY | | . | | . |
| 1264 | 502.0100 Concrete Masonry Bridges **P** | 2,771.000 CY | | . | | . |
| 1265 | 505.0405 Bar Steel Reinforcement HS Bridges | 435,860.000 LB | | . | | . |
| 1266 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 755,100.000 LB | | . | | . |
| 1267 | 505.0800.S Bar Steel Reinforcement HS Stainless Structures | 1,430.000 LB | | . | | . |
| 1268 | 505.0911 Bar Couplers No. 11 | 144.000 EACH | | . | | . |
| 1269 | 511.1200 Temporary Shoring (structure) 0012. B-40-854 | 3,240.000 SF | | . | | . |
| 1270 | 612.0106 Pipe Underdrain 6-Inch | 40.000 LF | | . | | . |
| 1271 | 612.0206 Pipe Underdrain Unperforated 6-Inch | 40.000 LF | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1272 | 645.0111 Geotextile Fabric Type DF Schedule A | 33.000 SY | | . | | . |
| 1273 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 14.000 EACH | | . | | . |
| 1274 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 5.000 EACH | | . | | . |
| 1275 | SPV.0060 Special 4162. Tip Testing Drilled Foundation Shaft 118. 11-Inch | 9.000 EACH | | . | | . |
| 1276 | SPV.0060 Special 4181. Bar Couplers No. 18 | 210.000 EACH | | . | | . |
| 1277 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 56.000 HRS | | . | | . |
| 1278 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 364.000 LF | | . | | . |
| 1279 | SPV.0090 Special 4440. Drilled Foundation Shaft 118.11-Inch | 525.000 LF | | . | | . |
| 1280 | SPV.0105 Special 4520. Trial Drilled Foundation Shaft 118.11-Inch | LUMP | LUMP | | | . |
| | SECTION 0006 TOTAL | | | | | . |

SECTION 0007 B-40-854 (Option B)
ALT GROUP CC2

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1281 | 206.1000 Excavation for Structures Bridges (structure) 0010. B-40-854 | LUMP | LUMP | | | . |
| 1282 | 209.0100 Backfill Granular | 2,190.000 CY | | . | | . |
| 1283 | 502.0100 Concrete Masonry Bridges **P** | 3,938.000 CY | | . | | . |
| 1284 | 505.0405 Bar Steel Reinforcement HS Bridges | 377,110.000 LB | | . | | . |
| 1285 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 720,240.000 LB | | . | | . |
| 1286 | 505.0800.S Bar Steel Reinforcement HS Stainless Structures | 1,430.000 LB | | . | | . |
| 1287 | 505.0911 Bar Couplers No. 11 | 96.000 EACH | | . | | . |
| 1288 | 511.1200 Temporary Shoring (structure) 0012. B-40-854 | 3,240.000 SF | | . | | . |
| 1289 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 14,870.000 LF | | . | | . |
| 1290 | 612.0106 Pipe Underdrain 6-Inch | 40.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1291 | 612.0206 Pipe Underdrain Unperforated 6-Inch | 40.000 LF | | . | | . |
| 1292 | 645.0111 Geotextile Fabric Type DF Schedule A | 33.000 SY | | . | | . |
| 1293 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 16.000 EACH | | . | | . |
| 1294 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 16.000 EACH | | . | | . |
| 1295 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 8.000 EACH | | . | | . |
| 1296 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 6.000 EACH | | . | | . |
| 1297 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 2.000 EACH | | . | | . |
| 1298 | SPV.0060 Special 4162. Tip Testing Drilled Foundation Shaft 118. 11-Inch | 4.000 EACH | | . | | . |
| 1299 | SPV.0060 Special 4181. Bar Couplers No. 18 | 70.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1300 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 24.000 HRS | | . | | . |
| 1301 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 207.000 LF | | . | | . |
| 1302 | SPV.0090 Special 4440. Drilled Foundation Shaft 118.11-Inch | 227.000 LF | | . | | . |
| 1303 | SPV.0105 Special 4520. Trial Drilled Foundation Shaft 118.11-Inch | LUMP | LUMP | | | . |
| | SECTION 0007 TOTAL | | | | | . |

SECTION 0008 B-40-856 (Option A)
ALT GROUP DD1

| | | | | | | |
|---|---|---|---|---|---|---|
| 1304 | 206.1000 Excavation for Structures Bridges (structure) 0011. B-40-856 | LUMP | LUMP | | | . |
| 1305 | 209.0100 Backfill Granular | 73.000 CY | | . | | . |
| 1306 | 502.0100 Concrete Masonry Bridges **P** | 2,828.000 CY | | . | | . |
| 1307 | 505.0405 Bar Steel Reinforcement HS Bridges | 325,210.000 LB | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1308 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 675,740.000 LB | | . | | . |
| 1309 | 511.1200 Temporary Shoring (structure) 0003. B-40-856 | 2,445.000 SF | | . | | . |
| 1310 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 12.000 EACH | | . | | . |
| 1311 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98.43-Inch | 2.000 EACH | | . | | . |
| 1312 | SPV.0060 Special 4162. Tip Testing Drilled Foundation Shaft 118.11-Inch | 10.000 EACH | | . | | . |
| 1313 | SPV.0060 Special 4181. Bar Couplers No. 18 | 150.000 EACH | | . | | . |
| 1314 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 48.000 HRS | | . | | . |
| 1315 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 115.000 LF | | . | | . |
| 1316 | SPV.0090 Special 4440. Drilled Foundation Shaft 118.11-Inch | 598.000 LF | | . | | . |
| | SECTION 0008 TOTAL | | | | | . |

SECTION 0009 B-40-856 (Option B)
ALT GROUP DD2

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1317 | 206.1000 Excavation for Structures Bridges (structure) 0011. B-40-856 | LUMP | LUMP | | | . |
| 1318 | 209.0100 Backfill Granular | 133.000 CY | | . | | . |
| 1319 | 502.0100 Concrete Masonry Bridges **P** | 3,502.000 CY | | . | | . |
| 1320 | 505.0405 Bar Steel Reinforcement HS Bridges | 319,380.000 LB | | . | | . |
| 1321 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 649,700.000 LB | | . | | . |
| 1322 | 511.1200 Temporary Shoring (structure) 0003. B-40-856 | 2,445.000 SF | | . | | . |
| 1323 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 7,980.000 LF | | . | | . |
| 1324 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 10.000 EACH | | . | | . |
| 1325 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 10.000 EACH | | . | | . |
| 1326 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 5.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1327 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 7.000 EACH | | . | | . |
| 1328 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 1.000 EACH | | . | | . |
| 1329 | SPV.0060 Special 4162. Tip Testing Drilled Foundation Shaft 118. 11-Inch | 6.000 EACH | | . | | . |
| 1330 | SPV.0060 Special 4181. Bar Couplers No. 18 | 90.000 EACH | | . | | . |
| 1331 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 28.000 HRS | | . | | . |
| 1332 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 65.000 LF | | . | | . |
| 1333 | SPV.0090 Special 4440. Drilled Foundation Shaft 118.11-Inch | 355.000 LF | | . | | . |
| | SECTION 0009 TOTAL | | | | | . |
| | TOTAL BID | | | | | . |

# PLEASE ATTACH SCHEDULE OF ITEMS HERE

# Wisconsin Department of Transportation

**Division of Transportation Systems Development**
Bureau of Project Development
4802 Sheboygan Avenue, Rm 601
P O Box 7916
Madison, WI 53707-7916

Telephone: (608) 266-1631
Facsimile (FAX): (608) 266-8459

August 12, 2015

## NOTICE TO ALL CONTRACTORS:

## Federal Wage Rate Addendum #01

## Letting of September 29, 2015

Attached are copies of the revised U.S. Department of Labor Wage Rates that are effective for this proposal in the September 29, 2015 letting. The first page of the attachment are the first page of the county highway wage sheets (Page 1 of 3) and correspond to the affected proposal's county. The last two pages of the attachment are pages 2 and 3 of the highway wage sheets, which are the same for all counties.

The following proposals and counties are affected in the September 29, 2015 letting:

| | |
|---|---|
| 01 Milwaukee | |

The responsibility for notifying potential subcontractors and suppliers of these changes remains with the prime contractors.

Sincerely,

*Mike Coleman*
Proposal Development Specialist
Proposal Management Section

SUPERSEDES DECISION WI20120010
U. S. DEPARTMENT OF LABOR
(DAVIS-BACON ACT, MINIMUM WAGE RATES)

STATE: Wisconsin
GENERAL DECISION NUMBER: WI150010
DATE: August 7, 2015
DESCRIPTION OF WORK: Highways and Airport Runway and Taxiway Construction

| LABORERS CLASSIFICATION: | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| Group 1: General Laborer; Tree Trimmer; Conduit Layer; Demolition and Wrecking Laborer; Guard Rail, Fence and Bridge Builder; Landscaper, Multiplate Culvert Assembler; Stone Handler; Bituminous Worker (Shoveler, Loader, Utility Man); Batch Truck Dumper; or Cement Handler; Bituminous Worker; (Dumper, Ironer, Smoother, Tamper); Concrete Handler | $27.51 | 19.35 |
| Group 2: Air Tool Operator; Joint Sawer and Filler (Pavement); Vibrator or Tamper Operator (Mechanical Hand Operated); Chain Saw Operator; Demolition Burning Torch Laborer | 27.66 | 19.35 |
| Group 3: Bituminous Worker (Raker and Luteman); Formsetter (Curb, Sidewalk, and Pavement); Strike Off man | 27.86 | 19.35 |
| Group 4: Line and Grade Specialist | 28.01 | 19.35 |
| Group 5: Blaster and Powderman | 28.16 | 19.35 |
| Group 6: Flagperson traffic control person | 24.00 | 19.35 |

CLASSES OF LABORER AND MECHANICS

| | | |
|---|---|---|
| Bricklayer | 35.37 | 18.47 |
| Carpenter | 30.52 | 14.41 |
| Piledriverman | 27.25 | 19.46 |
| Ironworker | 30.77 | 23.96 |
| Cement Mason/Concrete Finisher | 30.69 | 17.53 |
| Electrician | | See Page 3 |
| Line Construction | | |
| Lineman | 40.81 | 32% + 5.00 |
| Heavy Equipment Operator | 38.77 | 32% + 5.00 |
| Equipment Operator | 32.65 | 32% + 5.00 |
| Heavy Groundman Driver | 26.78 | 14.11 |
| Light Groundman Driver | 24.86 | 13.45 |
| Groundsman | 22.45 | 32% + 5.00 |
| Millwrights | 26.32 | 13.98 |
| Painter, Brush | 29.52 | 20.04 |
| Painter, Spray and Sandblaster | 30.27 | 20.04 |
| Painter, Bridge | 29.87 | 20.04 |
| Well Drilling: | | |
| Well Driller | 16.52 | 3.70 |

| Truck Drivers: | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| 1 & 2 Axles | 25.18 | 18.31 |
| Three or More Axles; Euclids, Dumptor & Articulated, Truck Mechanic | 25.38 | 18.31 |

Notes: Welders receive rate prescribed for craft performing operation to which welding is incidental. Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR, 5.5(a)(1)(ii)). Includes Modification #0 dated January 2, 2015; Modification #1 dated January 16, 2015; Modification #2 dated March 20, 2015; Modification #3 dated April 10, 2015; Modification #4 dated May 22, 2015; Modification #5 dated June 12, 2015;Modification #6 dated June 26, 2015; Modification #7 dated July 31, 2015; Modification #8 dated August 7, 2015.

SUPERSEDES DECISION WI20120010
U. S. DEPARTMENT OF LABOR
(DAVIS-BACON ACT, MINIMUM WAGE RATES)

STATE: Wisconsin
GENERAL DECISION NUMBER: WI150010
DATE: August 7, 2015
DESCRIPTION OF WORK: Highways and Airport Runway and Taxiway Construction

| POWER EQUIPMENT OPERATORS CLASSIFICATION: | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| Group 1: Cranes, tower cranes and derricks, with or without attachments, with a lifting capacity of over 100 tons or cranes, tower cranes and derricks with boom, leads and/or jib lengths measuring 176 feet or longer | $38.27 | $21.55 |
| Group 2: Cranes, tower cranes and derricks, with or without attachments, with a lifting capacity of 100 tons or less or cranes, tower cranes and derricks with boom, leads and/or jib lengths measuring 175 feet or less, and backhoes (excavators) having a manufacturer's rated capacity of 3 cu. yds. and over, caisson rigs, pile driver, dredge operator, dredge engineer. | $37.77 | $21.55 |
| Group 3: Mechanic or welder - heavy duty equipment, cranes with a lifting capacity of 25 tons or less, concrete breaker (manual or remote); vibrator/sonic concrete breaker; concrete laser screed; concrete slipform paver; concrete batch plant operator; concrete pavement spreader - heavy duty (rubber tired); concrete spreader and distributor, automatic subgrader (concrete); concrete grinder and planing machine; concrete slipform curb and gutter machine; slipform concrete placer; tube finisher; hydro blaster (10,000 psi and over); bridge paver; concrete conveyor system; concrete pump; stabilizing mixer (self propelled); shoulder widener; asphalt plant engineer; bituminous paver; bump cutter and grooving machine; milling machine; screed (bituminous paver); asphalt heater, planer and scarifier; backhoes (excavators) having a manufacturers rated capacity of under 3 cu. yds.; grader or motor patrol; tractor (scraper, dozer, pusher, loader); scraper - rubber tired (single or twin engine); endloader hydraulic backhoe (tractor-type); trenching machine; skid rigs; tractor, side boom (heavy); drilling or boring machine (mechanical heavy); roller (over 5 tons); percussion or rotary drilling machine; air track; blaster; loading machine (conveyor); tugger; boatmen; winches and A-frames; post driver; material hoist operator. | $37.27 | $21.55 |
| Group 4: Greaser, roller steel (5 tons or less); roller (pneumatic tired) - self-propelled; tractor (mounted or towed compactors and light equipment); shouldering machine; self-propelled chip spreader; concrete spreader; finishing machine; mechanical float; curing machine; power subgrader; joint saw (multiple blade) belting machine; burlap machine; texturing machine; tractor, endloader (rubber tired) - light; jeep digger; fork lift; mulcher; launch operator; fireman; environmental burner. | $37.01 | $21.55 |
| Group 5: Air compressor; power pack; vibratory hammer and extractor; heavy equipment, leadman; tank car heaters; stump chipper; curb machine operator; concrete pro-portioning plants generators; mudjack operator; rock breaker; crusher or screening plant; screed (milling machine); automatic belt conveyor and surge bin; pug mill operator; oiler; pump (over 3 inches); drilling machine helper. | $36.72 | $21.55 |
| Group 6: Off – road material hauler with or without ejector | $30.82 | $21.55 |

Premium Pay:
EPA Level “A” protection - $3.00 per hour
EPA Level “B” protection - $2.00 per hour
EPA Level “C” protection - $1.00 per hours

SUPERSEDES DECISION WI20120010
U. S. DEPARTMENT OF LABOR
(DAVIS-BACON ACT, MINIMUM WAGE RATES)

STATE: Wisconsin
GENERAL DECISION NUMBER: WI150010
DATE: August 7, 2015
DESCRIPTION OF WORK: Highways and Airport Runway and Taxiway Construction

| LABORERS CLASSIFICATION: | Rates | Benefits |
|---|---|---|
| Electricians | | |
| Area 1 | $29.60 | 26.5%+ 9.15 |
| Area 2: | | |
| Electricians | 31.21 | 18.92 |
| Area 3: | | |
| Electrical contracts under $130,000 | 26.24 | 16.85 |
| Electrical contracts over $130,000 | 29.41 | 16.97 |
| Area 4: | 29.84 | 29.50% + 9.37 |
| Area 5 | 28.96 | 24.85% + 9.70 |
| Area 6 | 35.25 | 19.30 |
| Area 8 | | |
| Electricians | 31.30 | 24.93% + 10.40 |
| Area 9: | | |
| Electricians | 35.75 | 19.87 |
| Area 10 | 29.64 | 20.54 |
| Area 11 | 32.54 | 24.07 |
| Area 12 | 32.87 | 19.23 |
| Area 13 | 35.13 | 23.09 |
| Teledata System Installer | | |
| Area 14 | | |
| Installer/Technician | 22.50 | 12.72 |
| Sound & Communications | | |
| Area 15 | | |
| Installer | 16.47 | 14.84 |
| Technician | 26.00 | 17.70 |

Area 1 - CALUMET (except township of New Holstein), GREEN LAKE (N. part, including Townships of Berlin, St. Marie and Seneca), MARQUETTE (N. part, including Townships of Crystal Lake, Neshkoro, Newton & Springfield), OUTAGAMIE, WAUPACA, WAUSHARA and WINNEBAGO COUNTIES.

Area 2 - ASHLAND, BARRON, BAYFIELD, BUFFALO, BURNETT, CHIPPEWA, CLARK (except Mayville, Colby, Unity, Sherman, Fremont, Lynn and Sherwood), CRAWFORD, DUNN, EAU CLAIRE, GRANT, IRON, JACKSON, LA CROSSE, MONROE, PEPIN, PIERCE, POLK, PRICE, RICHLAND, RUSK, ST. CROIX, SAWYER, TAYLOR, TREMPEALEAU, VERNON and WASHBURN COUNTIES

Area 3 - FLORENCE (townships of Aurora, Commonwealth, Fern, Florence and Homestead), MARINETTE (Niagara township)

Area 4 - BROWN, DOOR, KEWAUNEE, MANITOWOC (except Schleswig), MARINETTE (Wausauke and area south thereof), OCONTO, MENOMINEE (East of a line 6 miles West of the West boundary of Oconto County), SHAWANO (except area North of Townships of Aniwa and Hutchins) COUNTIES.

Area 5 - ADAMS, CLARK (Colby, Freemont, Lynn, Mayville, Sherman, Sherwood, Unity), FOREST, JUNEAU, LANGLADE, LINCOLN, MARATHON, MARINETTE (Area North of the town of Wausaukee), MENOMINEE (Area West of a line 6 miles West of the West boundary of Oconto County), ONEIDA, PORTAGE, SHAWANO (Area North of the townships of Aniwa and Hutchins), VILAS AND WOOD COUNTIES

Area 6 - KENOSHA COUNTY

Area 8 - DODGE, (Emmet Township only), GREEN, JEFFERSON, LAFAYETTE, RACINE (Burlington township), ROCK and WALWORTH COUNTIES

Area 9 - COLUMBIA, DANE, DODGE, (area west of Hwy. 26, except Chester & Emmet Townships), GREEN LAKE (except townships of Berlin, Seneca and St. Marie), IOWA, MARQUETTE (except townships of Neshkoka, Crystal Lake, Newton and Springfield), and SAUK COUNTIES

Area 10 - CALUMET (Township of New Holstein), DODGE (East of Hwy. 26 including Chester Township), FOND DU LAC, MANITOWOC (Schleswig), and SHEBOYGAN COUNTIES

Area 11 - DOUGLAS COUNTY

Area 12 - RACINE (except Burlington township) COUNTY

Area 13 - MILWAUKEE, OZAUKEE, WASHINGTON and WAUKESHA COUNTIES

Area 14 - Statewide.

Area 15 - DODGE (East of Hwy 26 including Chester Twp, excluding Emmet Twp), FOND DU LAC (Except Waupun), MILWAUKEE, OZAUKEE, MANITOWOC (Schleswig), WASHINGTON, AND WAUKESHA COUNTIES.

# Wisconsin Department of Transportation

**Division of Transportation Systems Development**
Bureau of Project Development
4802 Sheboygan Avenue, Rm 601
P O Box 7916
Madison, WI 53707-7916

Telephone: (608) 266-1631
Facsimile (FAX): (608) 266-8459

September 1, 2015

## NOTICE TO ALL CONTRACTORS:

## Federal Wage Rate Addendum #02

## Letting of September 29, 2015

Attached are copies of the revised U.S. Department of Labor Wage Rates that are effective for this proposal in the September 29, 2015 letting. The first page of the attachment are the first page of the county highway wage sheets (Page 1 of 3) and correspond to the affected proposal's county. The last two pages of the attachment are pages 2 and 3 of the highway wage sheets, which are the same for all counties.

The following proposals and counties are affected in the September 29, 2015 letting:

| | |
|---|---|
| 01 Milwaukee | |

The responsibility for notifying potential subcontractors and suppliers of these changes remains with the prime contractors.

Sincerely,

*Mike Coleman*
Proposal Development Specialist
Proposal Management Section

SUPERSEDES DECISION WI20120010
U. S. DEPARTMENT OF LABOR
(DAVIS-BACON ACT, MINIMUM WAGE RATES)

STATE: Wisconsin
GENERAL DECISION NUMBER: WI150010
DATE: August 28, 2015
DESCRIPTION OF WORK: Highways and Airport Runway and Taxiway Construction

| LABORERS CLASSIFICATION: | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| Group 1: General Laborer; Tree Trimmer; Conduit Layer; Demolition and Wrecking Laborer; Guard Rail, Fence and Bridge Builder; Landscaper, Multiplate Culvert Assembler; Stone Handler; Bituminous Worker (Shoveler, Loader, Utility Man); Batch Truck Dumper; or Cement Handler; Bituminous Worker; (Dumper, Ironer, Smoother, Tamper); Concrete Handler | $27.51 | 19.35 |
| Group 2: Air Tool Operator; Joint Sawer and Filler (Pavement); Vibrator or Tamper Operator (Mechanical Hand Operated); Chain Saw Operator; Demolition Burning Torch Laborer | 27.66 | 19.35 |
| Group 3: Bituminous Worker (Raker and Luteman); Formsetter (Curb, Sidewalk, and Pavement); Strike Off man | 27.86 | 19.35 |
| Group 4: Line and Grade Specialist | 28.01 | 19.35 |
| Group 5: Blaster and Powderman | 28.16 | 19.35 |
| Group 6: Flagperson traffic control person | 24.00 | 19.35 |

CLASSES OF LABORER AND MECHANICS

| | | |
|---|---|---|
| Bricklayer | 35.37 | 18.47 |
| Carpenter | 30.52 | 14.41 |
| Piledriverman | 27.25 | 19.46 |
| Ironworker | 32.36 | 24.07 |
| Cement Mason/Concrete Finisher | 30.69 | 17.53 |
| Electrician | | See Page 3 |
| Line Construction | | |
| Lineman | 40.81 | 32% + 5.00 |
| Heavy Equipment Operator | 38.77 | 32% + 5.00 |
| Equipment Operator | 32.65 | 32% + 5.00 |
| Heavy Groundman Driver | 26.78 | 14.11 |
| Light Groundman Driver | 24.86 | 13.45 |
| Groundsman | 22.45 | 32% + 5.00 |
| Millwrights | 26.32 | 13.98 |
| Painter, Brush | 29.52 | 20.04 |
| Painter, Spray and Sandblaster | 30.27 | 20.04 |
| Painter, Bridge | 29.87 | 20.04 |
| Well Drilling: | | |
| Well Driller | 16.52 | 3.70 |

| Truck Drivers: | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| 1 & 2 Axles | 25.18 | 18.31 |
| Three or More Axles; Euclids, Dumptor & Articulated, Truck Mechanic | 25.38 | 18.31 |

Notes: Welders receive rate prescribed for craft performing operation to which welding is incidental. Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR, 5.5(a)(1)(ii)). Includes Modification #0 dated January 2, 2015; Modification #1 dated January 16, 2015; Modification #2 dated March 20, 2015; Modification #3 dated April 10, 2015; Modification #4 dated May 22, 2015; Modification #5 dated June 12, 2015;Modification #6 dated June 26, 2015; Modification #7 dated July 31, 2015; Modification #8 dated August 7, 2015; Modification #9 dated August 28, 2015.

SUPERSEDES DECISION WI20120010
U. S. DEPARTMENT OF LABOR
(DAVIS-BACON ACT, MINIMUM WAGE RATES)

STATE: Wisconsin
GENERAL DECISION NUMBER: WI150010
DATE: August 28, 2015
DESCRIPTION OF WORK: Highways and Airport Runway and Taxiway Construction

| POWER EQUIPMENT OPERATORS CLASSIFICATION: | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| Group 1: Cranes, tower cranes and derricks, with or without attachments, with a lifting capacity of over 100 tons or cranes, tower cranes and derricks with boom, leads and/or jib lengths measuring 176 feet or longer | $38.27 | $21.55 |
| Group 2: Cranes, tower cranes and derricks, with or without attachments, with a lifting capacity of 100 tons or less or cranes, tower cranes and derricks with boom, leads and/or jib lengths measuring 175 feet or less, and backhoes (excavators) having a manufacturer's rated capacity of 3 cu. yds. and over, caisson rigs, pile driver, dredge operator, dredge engineer. | $37.77 | $21.55 |
| Group 3: Mechanic or welder - heavy duty equipment, cranes with a lifting capacity of 25 tons or less, concrete breaker (manual or remote); vibrator/sonic concrete breaker; concrete laser screed; concrete slipform paver; concrete batch plant operator; concrete pavement spreader - heavy duty (rubber tired); concrete spreader and distributor, automatic subgrader (concrete); concrete grinder and planing machine; concrete slipform curb and gutter machine; slipform concrete placer; tube finisher; hydro blaster (10,000 psi and over); bridge paver; concrete conveyor system; concrete pump; stabilizing mixer (self propelled); shoulder widener; asphalt plant engineer; bituminous paver; bump cutter and grooving machine; milling machine; screed (bituminous paver); asphalt heater, planer and scarifier; backhoes (excavators) having a manufacturers rated capacity of under 3 cu. yds.; grader or motor patrol; tractor (scraper, dozer, pusher, loader); scraper - rubber tired (single or twin engine); endloader hydraulic backhoe (tractor-type); trenching machine; skid rigs; tractor, side boom (heavy); drilling or boring machine (mechanical heavy); roller (over 5 tons); percussion or rotary drilling machine; air track; blaster; loading machine (conveyor); tugger; boatmen; winches and A-frames; post driver; material hoist operator. | $37.27 | $21.55 |
| Group 4: Greaser, roller steel (5 tons or less); roller (pneumatic tired) - self-propelled; tractor (mounted or towed compactors and light equipment); shouldering machine; self-propelled chip spreader; concrete spreader; finishing machine; mechanical float; curing machine; power subgrader; joint saw (multiple blade) belting machine; burlap machine; texturing machine; tractor, endloader (rubber tired) - light; jeep digger; fork lift; mulcher; launch operator; fireman; environmental burner. | $37.01 | $21.55 |
| Group 5: Air compressor; power pack; vibratory hammer and extractor; heavy equipment, leadman; tank car heaters; stump chipper; curb machine operator; concrete pro-portioning plants generators; mudjack operator; rock breaker; crusher or screening plant; screed (milling machine); automatic belt conveyor and surge bin; pug mill operator; oiler; pump (over 3 inches); drilling machine helper. | $36.72 | $21.55 |
| Group 6: Off – road material hauler with or without ejector | $30.82 | $21.55 |

Premium Pay:
EPA Level “A” protection - $3.00 per hour
EPA Level “B” protection - $2.00 per hour
EPA Level “C” protection - $1.00 per hours

STATE: Wisconsin
GENERAL DECISION NUMBER: WI150010
DESCRIPTION OF WORK: Highways and Airport Runway and Taxiway Construction

DATE: August 28, 2015

| LABORERS CLASSIFICATION: | Rates | Benefits |
|---|---|---|
| Electricians | | |
| Area 1 | $29.60 | 26.5%+ 9.15 |
| Area 2: | | |
| Electricians | 31.21 | 18.92 |
| Area 3: | | |
| Electrical contracts under $130,000 | 26.24 | 16.85 |
| Electrical contracts over $130,000 | 29.41 | 16.97 |
| Area 4: | 29.84 | 29.50% + 9.37 |
| Area 5 | 28.96 | 24.85% + 9.70 |
| Area 6 | 35.25 | 19.30 |
| Area 8 | | |
| Electricians | 31.30 | 24.93% + 10.40 |
| Area 9: | | |
| Electricians | 35.75 | 19.87 |
| Area 10 | 29.64 | 20.54 |
| Area 11 | 32.54 | 24.07 |
| Area 12 | 32.87 | 19.23 |
| Area 13 | 35.13 | 23.09 |
| Teledata System Installer | | |
| Area 14 | | |
| Installer/Technician | 22.50 | 12.72 |
| Sound & Communications | | |
| Area 15 | | |
| Installer | 16.47 | 14.84 |
| Technician | 26.00 | 17.70 |

Area 1 - CALUMET (except township of New Holstein), GREEN LAKE (N. part, including Townships of Berlin, St. Marie and Seneca), MARQUETTE (N. part, including Townships of Crystal Lake, Neshkoro, Newton & Springfield), OUTAGAMIE, WAUPACA, WAUSHARA and WINNEBAGO COUNTIES.

Area 2 - ASHLAND, BARRON, BAYFIELD, BUFFALO, BURNETT, CHIPPEWA, CLARK (except Mayville, Colby, Unity, Sherman, Fremont, Lynn and Sherwood), CRAWFORD, DUNN, EAU CLAIRE, GRANT, IRON, JACKSON, LA CROSSE, MONROE, PEPIN, PIERCE, POLK, PRICE, RICHLAND, RUSK, ST. CROIX, SAWYER, TAYLOR, TREMPEALEAU, VERNON and WASHBURN COUNTIES

Area 3 - FLORENCE (townships of Aurora, Commonwealth, Fern, Florence and Homestead), MARINETTE (Niagara township)

Area 4 - BROWN, DOOR, KEWAUNEE, MANITOWOC (except Schleswig), MARINETTE (Wausauke and area south thereof), OCONTO, MENOMINEE (East of a line 6 miles West of the West boundary of Oconto County), SHAWANO (except area North of Townships of Aniwa and Hutchins) COUNTIES.

Area 5 - ADAMS, CLARK (Colby, Freemont, Lynn, Mayville, Sherman, Sherwood, Unity), FOREST, JUNEAU, LANGLADE, LINCOLN, MARATHON, MARINETTE (Area North of the town of Wausaukee), MENOMINEE (Area West of a line 6 miles West of the West boundary of Oconto County), ONEIDA, PORTAGE, SHAWANO (Area North of the townships of Aniwa and Hutchins), VILAS AND WOOD COUNTIES

Area 6 - KENOSHA COUNTY

Area 8 - DODGE, (Emmet Township only), GREEN, JEFFERSON, LAFAYETTE, RACINE (Burlington township), ROCK and WALWORTH COUNTIES

Area 9 - COLUMBIA, DANE, DODGE, (area west of Hwy. 26, except Chester & Emmet Townships), GREEN LAKE (except townships of Berlin, Seneca and St. Marie), IOWA, MARQUETTE (except townships of Neshkoka, Crystal Lake, Newton and Springfield), and SAUK COUNTIES

Area 10 - CALUMET (Township of New Holstein), DODGE (East of Hwy. 26 including Chester Township), FOND DU LAC, MANITOWOC (Schleswig), and SHEBOYGAN COUNTIES

Area 11 - DOUGLAS COUNTY

Area 12 - RACINE (except Burlington township) COUNTY

Area 13 - MILWAUKEE, OZAUKEE, WASHINGTON and WAUKESHA COUNTIES

Area 14 - Statewide.

Area 15 - DODGE (East of Hwy 26 including Chester Twp, excluding Emmet Twp), FOND DU LAC (Except Waupun), MILWAUKEE, OZAUKEE, MANITOWOC (Schleswig), WASHINGTON, AND WAUKESHA COUNTIES.

# Wisconsin Department of Transportation

August 17, 2015

**Division of Transportation Systems Development**
Bureau of Project Development
4802 Sheboygan Avenue, Rm 601
P O Box 7916
Madison, WI 53707-7916

Telephone: (608) 266-1631
Facsimile (FAX): (608) 266-8459

## NOTICE TO ALL CONTRACTORS:

**Proposal #01: 1060-33-81, WISC 2015 473**
**Zoo IC – Zoo Interchange Phase 2**
**Lincoln – Bluemound, 121st to 70th**
**USH 45**
**Milwaukee County**

**1060-34-82**
**Zoo IC – IH 894 NB Auxiliary Lane**
**Oklahoma Ave to National Ave**
**IH 894**
**Milwaukee County**

**1060-43-81, WISC 2015 474**
**East West Freeway**
**Underwood Cr Prkwy & 121st St Brdg**
**IH 94**
**Milwaukee County**

## Letting of September 29, 2015

This is Addendum No. 01, which provides for the following:

**Special Provisions**

| **Revised** Special Provisions | |
|---|---|
| Article No. | Description |
| 40 | Contract Award and Execution |
| 43 | Contractor Document Submittals |

| **Added** Special Provisions | |
|---|---|
| Article No. | Description |
| 405 | Expansion Device, B-40-869 & B-40-870 |
| 406 | Steel Sign Bridges |

**Schedule of Items**

| **Revised** Bid Item Quantities | | | | | |
|---|---|---|---|---|---|
| Bid Item | Item Description | Unit | Old Quantity | Revised Quantity | Proposal Total |
| 205.0100 | Excavation Common | CY | 1070089 | 1066067 | 1076127 |
| 312.0115 | Select Crushed Material | CY | 254837 | 253455 | 256930 |
| 628.2004 | Erosion Mat Class I Type B | SY | 442901 | 441776 | 444336 |
| 628.2023 | Erosion Mat Class II Type B | SY | 68614 | 67610 | 67610 |
| 628.2027 | Erosion Mat Class II Type C | SY | 14853 | 9258 | 9258 |
| 629.0205 | Fertilizer Type A | CWT | 17.9 | 15.5 | 15.5 |
| 629.0210 | Fertilizer Type B | CWT | 242.6 | 242.2 | 244.2 |
| 630.0130 | Seeding Mixture No. 30 | LB | 6202 | 4740 | 4790 |
| 630.0180 | Seeding Mixture No. 80 | LB | 468 | 194 | 194 |
| 630.0200 | Seeding Temporary | LB | 5518 | 5457 | 5492 |
| 631.0300 | Sod Water | MGAL | 181.8 | 191.6 | 191.6 |
| 631.1000 | Sod Lawn | SY | 8087 | 8523 | 8523 |
| SPV.0035.0100 | EBS Excavation | CY | 13277 | 13221 | 14736 |
| SPV.0035.0101 | EBS Backfill | CY | 13277 | 13221 | 14736 |
| SPV.0165.4785 | Concrete Staining Previously Constructed Structure | SF | 500000 | 536900 | 622565 |
| SPV.0180.0200 | Topsoil Special | SY | 376080 | 372415 | 372415 |

| **Added** Bid Item Quantities | | | | | |
|---|---|---|---|---|---|
| Bid Item | Item Description | Unit | Old Quantity | Revised Quantity | Proposal Total |
| 630.0171 | Seeding Mixture No. 70A | LB | 0 | 439 | 439 |

| **Deleted** Bid Item Quantities | | | | | |
|---|---|---|---|---|---|
| Bid Item | Item Description | Unit | Old Quantity | Revised Quantity | Proposal Total |
| 203.0200.0024 | Removing Old Structure 180HA+50 | LUMP | 1 | 0 | 0 |

**Plan Sheets**

| **Revised** Plan Sheets | |
|---|---|
| Plan Sheet | Plan Sheet Title (brief description of changes to sheet) |
| 112-113 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 129-130 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 134 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 138-140 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 143 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 147-148 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 159 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 167 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 170 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 189-190 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 193-194 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 198-199 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 208 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 216-217 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 219-220 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 234 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |

| | |
|---|---|
| 272 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 317 | Confirms bid item for removal of precast concrete arch |
| 329 | Added another variation of detailing for dowel bars in concrete shoulders |
| 385 | Removed incorrect bid item callout for removal of precast concrete arch |
| 388 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 393-394 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 400 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 654-655 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 659-661 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 665 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 685 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 715-716 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 718 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 720 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 722 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 725-727 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 730 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. |
| 731-732 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 1621 | Removed incorrect bid item for removal of precast concrete arch |
| 1661-1665 | Existing ground surface was updated resulting in grading limit and quantity revisions. Other minor revisions also included. |
| 1667 | Existing ground surface was updated resulting in grading limit and quantity revisions. Other minor revisions also included. |
| 1671-1672 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 1806-1808 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 1811 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 1812-1815 | Seeding mix in indicated areas is changing from mix 30 or 80 to mix 70A. Existing ground surface was updated resulting in grading limit and quantity revisions. |
| 2074 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 2082 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 2135-2137 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 2151 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 2154-2155 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 3934-3935 | Staining of additional structures added to the contract. |
| 4642-4643 | Existing ground surface was updated resulting in grading limit and quantity revisions. Other minor revisions also included. |
| 4648-4649 | Existing ground surface was updated resulting in grading limit and quantity revisions. Other minor revisions also included. |
| 4653-4654 | Existing ground surface was updated resulting in grading limit and quantity revisions. Other minor revisions also included. |
| 4661-4662 | Existing ground surface was updated resulting in grading limit and quantity revisions. Other minor revisions also included. |
| 4706-4707 | Existing ground surface was updated resulting in grading limit and quantity revisions. Other minor revisions also included. |
| 4710 | Existing ground surface was updated resulting in grading limit and quantity revisions. Other minor revisions also included. |
| 4728-4729 | Existing ground surface was updated resulting in grading limit and quantity revisions. Other minor revisions also included. |
| 4735-4737 | Existing ground surface was updated resulting in grading limit and quantity revisions. Other minor revisions also included. |
| 4741 | Existing ground surface was updated resulting in grading limit and quantity revisions. Other minor revisions also included. |
| 4751-4758 | Existing ground surface was updated resulting in grading limit and quantity revisions. Other minor revisions also included. |

| | |
|---|---|
| 4765-4767 | Existing ground surface was updated resulting in grading limit and quantity revisions. Other minor revisions also included. |
| 4786-4787 | Existing ground surface was updated resulting in grading limit and quantity revisions. Other minor revisions also included. |
| 4827-4829 | Existing ground surface was updated resulting in grading limit and quantity revisions. Other minor revisions also included. |
| 4840-4841 | Existing ground surface was updated resulting in grading limit and quantity revisions. Other minor revisions also included. |
| 5218-5224 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 5236-5244 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 5473-5480 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 5802-5813 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 5875-5884 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 5904-5916 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 5922-5931 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 6072-6075 | Existing ground surface was updated resulting in grading limit and quantity revisions |
| 6199-6202 | Revised earthwork in area of precast concrete arch removal |
| 6308-6319 | Existing ground surface was updated resulting in grading limit and quantity revisions |

| **Added** Plan Sheets | |
|---|---|
| Plan Sheet | Plan Sheet Title (brief description of why sheet was added) |
| 6680A-6680AC | Existing structures shown for info only. Staining of additional structures added to the contract. |

The responsibility for notifying potential subcontractors and suppliers of these changes remains with the prime contractor.

Sincerely,

*Mike Coleman*

Proposal Development Specialist
Proposal Management Section

**ADDENDUM NO. 01**

**1060-33-81**

**August 17, 2015**

**Special Provisions**

**40. Contract Award and Execution**

*Replace the seventh paragraph with the following:*

The low bidder shall present authentic copies of their BED at the department's office, located at 2424 S. 102nd Street, West Allis, WI by October 2, 2015, at 10:00 AM.

**43. Contractor Document Submittals**

*Replace the first paragraph with the following:*

This special provision describes minimum requirements for submitting project documents to the department.

**405. Expansion Device, B-40-869 & B-40-870.**

**A Description**
This special provision describes furnishing and installing an expansion device in accordance to standard spec 502, as shown on the plans, and as hereinafter provided.

**B Materials**
The minimum thickness of the polychloroprene strip seal shall be ¼-inch for non-reinforced elastomeric glands and 1/8-inch for reinforced glands. Furnish the strip seal gland in lengths suitable for a continuous one-piece installation at each individual expansion joint location. Provide preformed polychloroprene strip seals that conform to the requirements ASTM D3542, and have the following physical properties:

| **Property Requirements** | **Value** | **Test Method** |
|---|---|---|
| Tensile Strength, min. | 2000 psi | ASTM D412 |
| Elongation @ Break, min | 250% | ASTM D412 |
| Hardness, Type A, Durometer | 60 ± 5 pts. | ASTM D2240 |
| Compression Set, 70 hours @212˚F, max. | 35% | D395 Method B Modified |
| Ozone Resistance, after 70 hrs. at 100˚F under 20% Strain with 100 pphm ozone | No Cracks | ASTM D1149 Method A |
| Mass Change in Oil 3 after 70 hr. 212˚F Mass Change, max. | 45% | ASTM D471 |

Install the elastomeric strip seal gland with tools recommended by the manufacturer, and with a lubricant adhesive conforming to the requirements of ASTM D4070.

The manufacturer and model number shall be one of the following approved strip seal expansion device products:

| Manufacturer | Model Number Strip Seal Gland Size* 4-Inch | 5-Inch | 6-Inch |
|---|---|---|---|
| D.S. Brown | SSA2-A2R-400 | SSA2-A2R-XTRA | SSA2-A2R-XTRA |
| R.J. Watson | RJA-RJ400 | RJA-RJ500 | RJA-RJ600 |
| Watson Bowman Acme | A-SE400 | A-SE500 | A-SE800 |
| Commercial Fabricators | A-AS400 | ----- | ----- |

*Expansion device strip seal gland size requirement of 4", 5", and 6" shall be as shown on the plans.

Furnish manufacturer's certification for production of polychloroprene represented showing test results for the cured material supplied, and certifying that it meets all specified requirements.

The steel extrusion or retainer shall conform to ASTM designation A 709 grade 36 steel. After fabrication, steel shall be galvanized conforming to the requirements ASTM A123.

Manufacturer's certifications for adhesive and steel shall attest that the materials meet the specification requirements.
502-020 (20110615)

**406. Steel Sign Bridges**

*Supplement standard spec 641.2.8 with the following:*

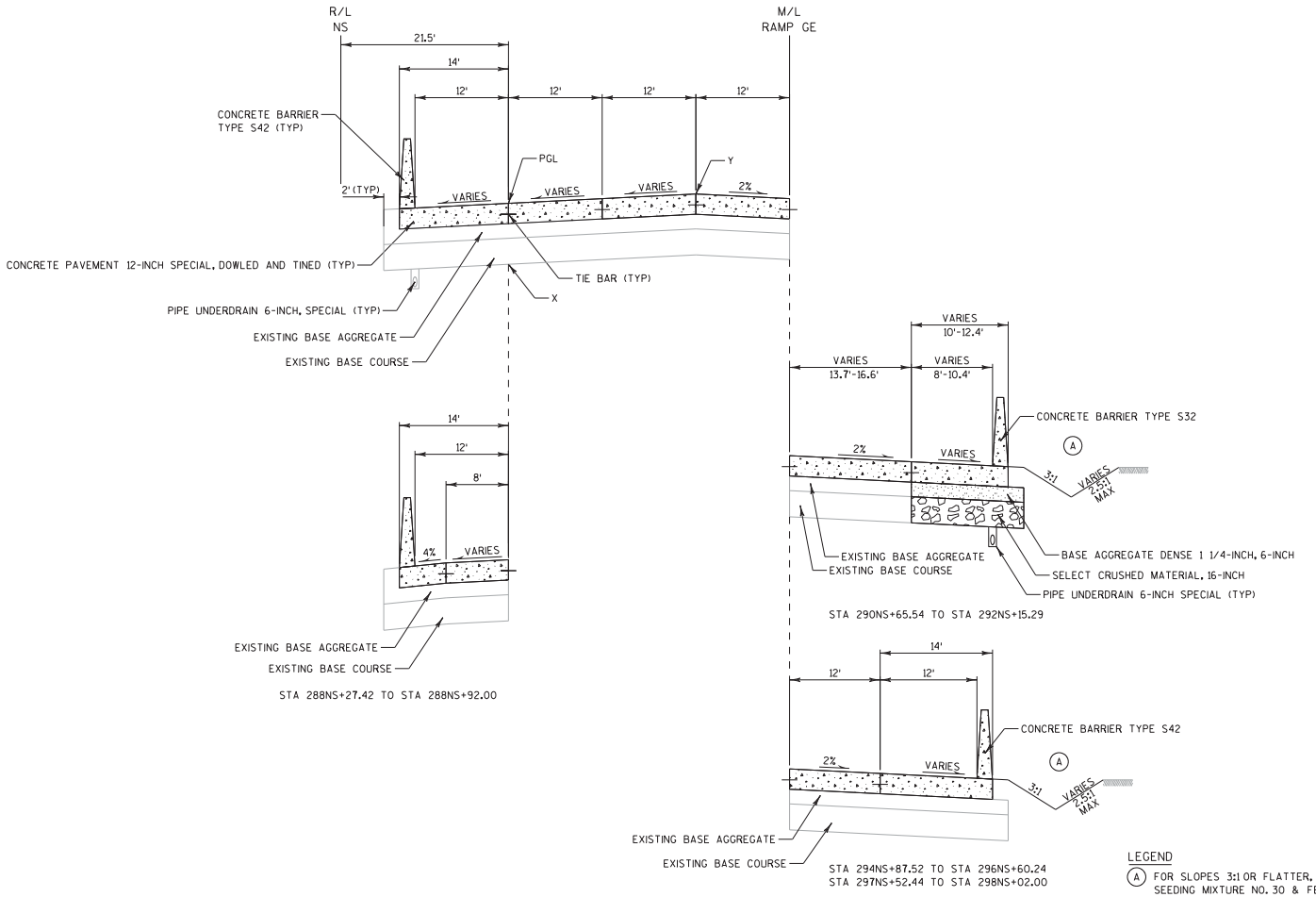
Submit shop drawings identified by structure number, design computations, and material specifications, to the engineer before fabrication of steel sign bridges. Provide tightening procedures for mast arm or luminaries arm to pole shaft connections on the shop drawings.

**Schedule of Items**
Attached, dated August 17, 2015, are the revised Schedule of Items Pages 1 – 142.

**Plan Sheets**
The following 8½ x 11-inch sheets are attached and made part of the plans for this proposal:

Revised: 112-113, 129-130, 134, 138-140, 143, 147-148, 159, 167, 170, 189-190, 193-194, 198-199, 208, 216-217, 219-220, 234, 272, 317, 329, 385, 388, 393-394, 400, 654-655, 659-661, 665, 685, 715-716, 718, 720, 722, 725-727, 730-732, 1621, 1661-1665, 1667, 1671-1672, 1806-1808, 1811-1815, 2074, 2082, 2135-2137, 2151, 2154-2155, 3934-3935, 4642-4643, 4648-4649, 4653-4654, 4661-4662, 4706-4707, 4710, 4728-4729, 4735-4737, 4741, 4751-4758, 4765-4767, 4786-4787, 4827-4829, 4840-4841, 5218-5224, 5236-5244, 5473-5480, 5802-5813, 5875-5884, 5904-5916, 5922-5931, 6072-6075, 6199-6202, 6308-6319.
Added: 6680A – 6680AC

END OF ADDENDUM




## TYPICAL FINISHED SECTION

**IH 894 WB / USH 45 NB**

STA 288NS+27.42 TO STA 289NS+83.00
STA 290NS+65.54 TO STA 292NS+15.29
STA 294NS+87.52 TO STA 296NS+60.24
STA 297NS+52.44 TO STA 298NS+02.00

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS SECTION
Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

1 FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A
STA 290NS+65.54 TO STA 292NS+15.29
STA 294NS+87.52 TO STA 296NS+60.24
STA 297NS+52.44 TO STA 298NS+02.00

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

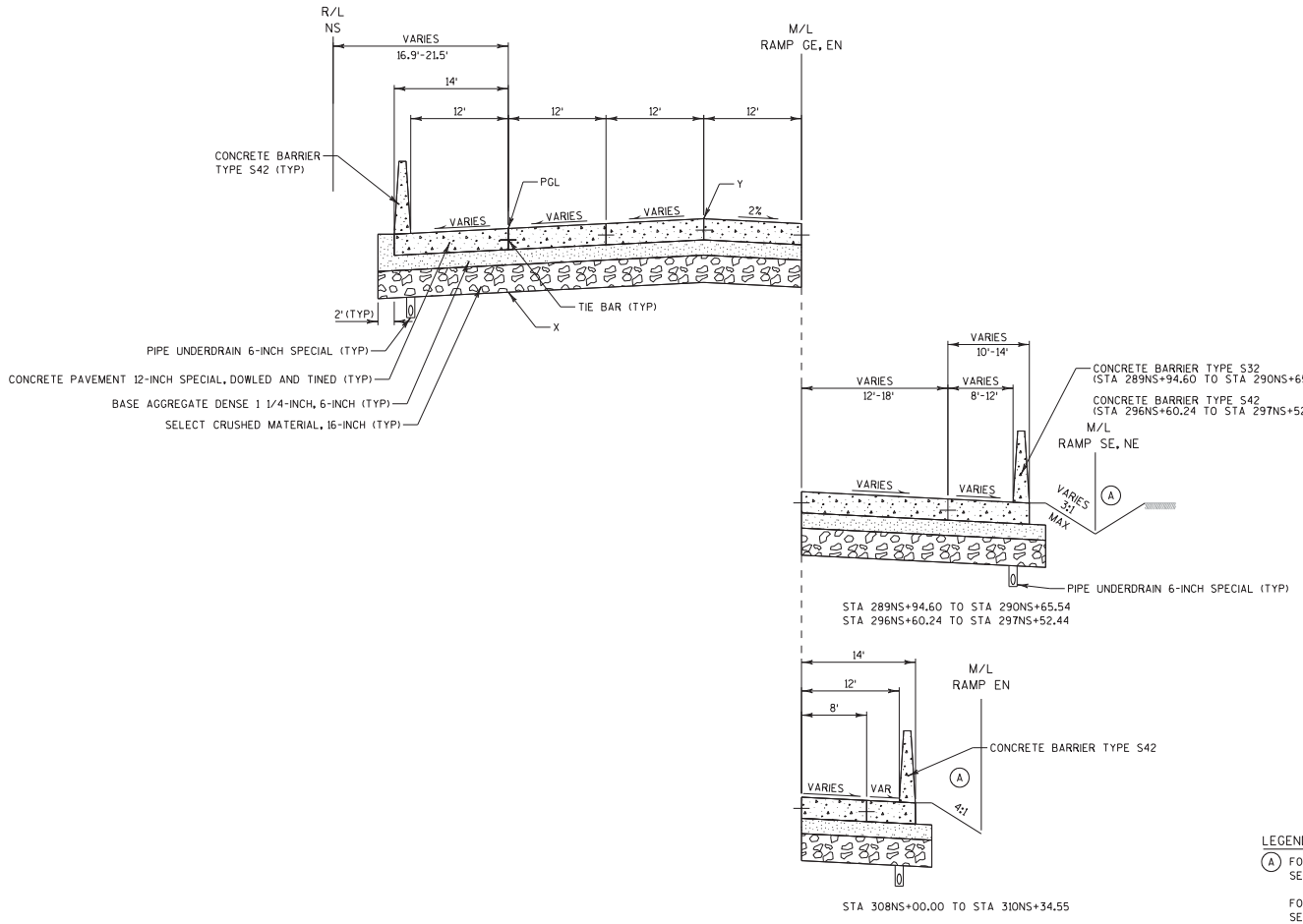
(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

NOTE

LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

Addendum No. 01
ID 1060-33-81
Revised Sheet 112
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 112 | E |
|---|---|---|---|---|---|




## TYPICAL FINISHED SECTION

### IH 894 WB / USH 45 NB

STA 289NS+83.00 TO STA 290NS+65.54
STA 296NS+60.24 TO STA 297NS+52.44
STA 308NS+00.00 TO STA 314NS+33.80

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION

X = POINT REFERRED TO ON CROSS SECTION

Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

(1) FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A
STA 289NS+94.60 TO STA 290NS+65.54
STA 296NS+60.24 TO STA 297NS+52.44

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

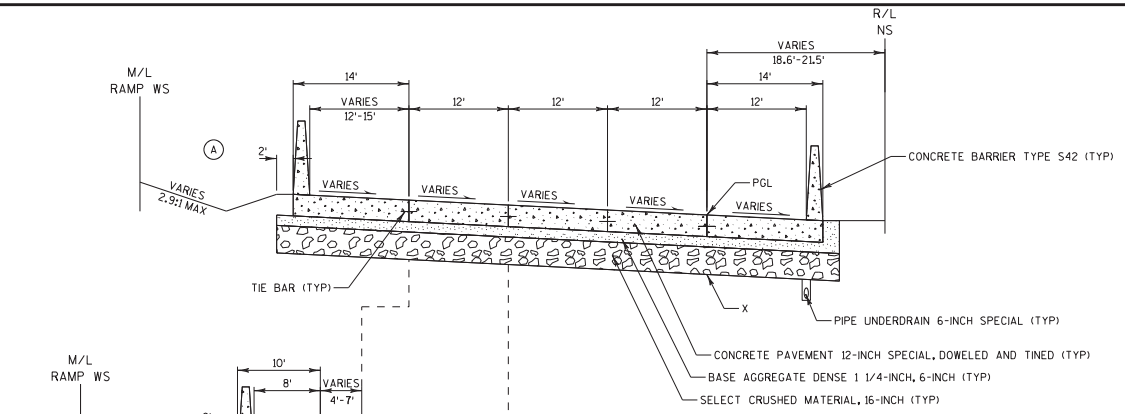
NOTE

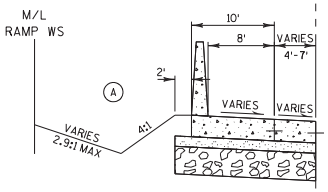
LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

Addendum No. 01
ID 1060-33-81
Revised Sheet 113
August 17, 2015

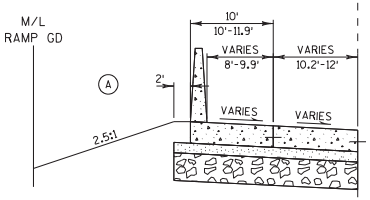
| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 113 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\020401_ts_NS_NB_S.dgn PLOT DATE : 12-AUG-2015 16:30 PLOT BY : MSCD1S PLOT NAME : 020401_ts_NS_NB_S12 PLOT SCALE : 15:1

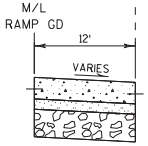


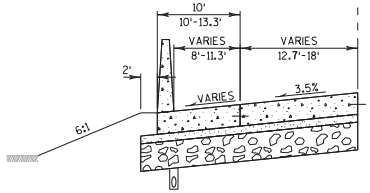

STA 283NS+37.37 TO STA 284NS+86.42




STA 286NS+35.75 TO STA 287NS+73.46




STA 287NS+73.46 TO STA 290NS+39.33




STA 290NS+39.33 TO STA 291NS+62.52

## TYPICAL FINISHED SECTION

IH 894 EB/ USH 45 SB

STA 280NS+68.91 TO STA 291NS+62.52

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 290NS+39.33 TO STA 291NS+62.52 (1)

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

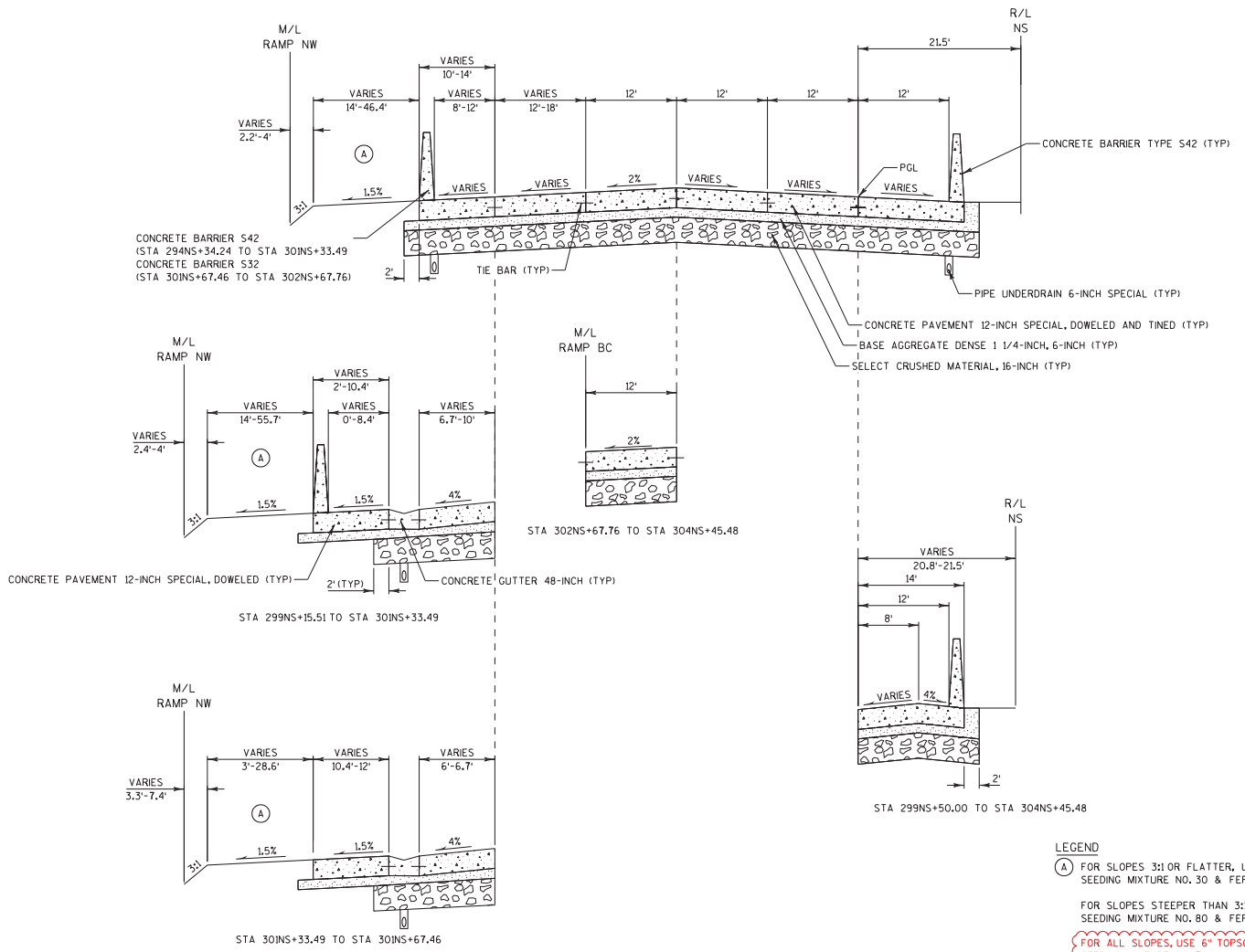
(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

NOTE

LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

Addendum No. 01
ID 1060-33-81
Revised Sheet 129
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 129 | E |
|---|---|---|---|---|---|




Addendum No. 01
ID 1060-33-81
Revised Sheet 130
August 17, 2015

## TYPICAL FINISHED SECTION

### IH 894 EB/ USH 45 SB

STA 294NS+34.24 TO STA 304NS+45.48

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

(1) FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 294NS+34.24 TO STA 302NS+67.76

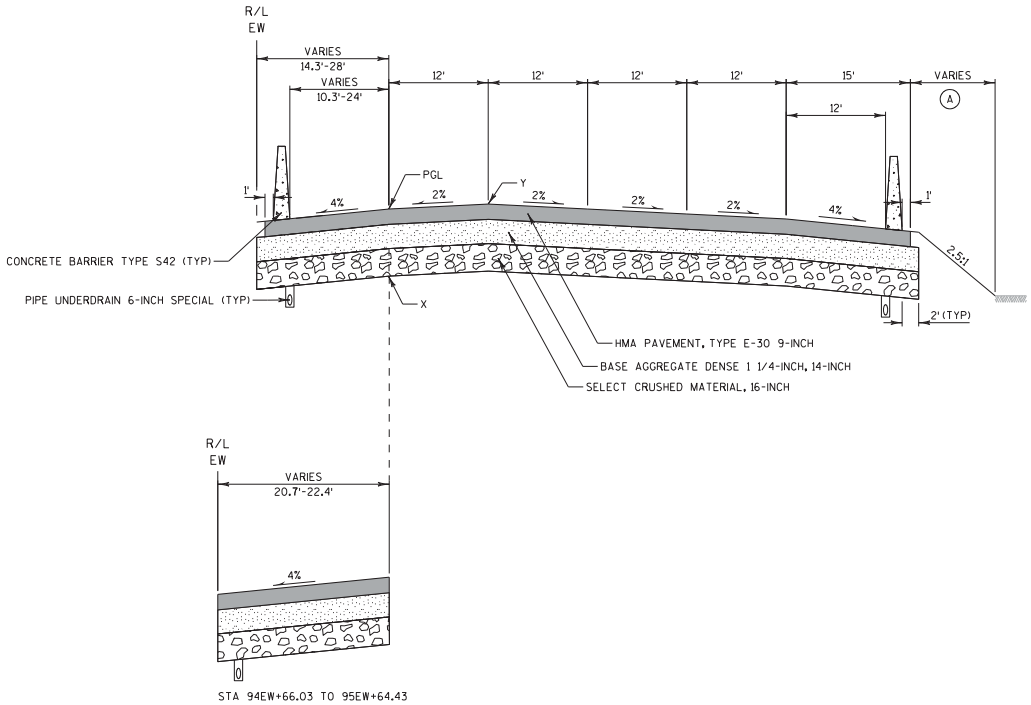
(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

NOTE

LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 130 | E |
|---|---|---|---|---|---|




## TYPICAL FINISHED SECTION

### IH 94 EB

STA 88EW+00.00 TO STA 99EW+25.59

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 88EW+00.00 TO STA 99EW+25.59 (1)

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

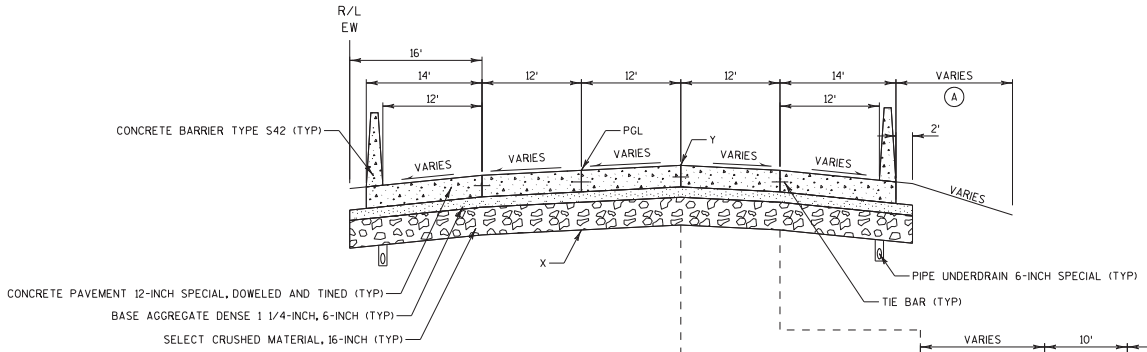
(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

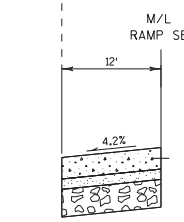
NOTE

LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

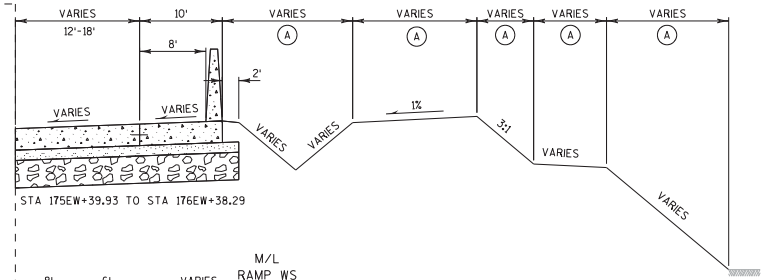
Addendum No. 01
ID 1060-33-81
Revised Sheet 134
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 134 | E |
|---|---|---|---|---|---|

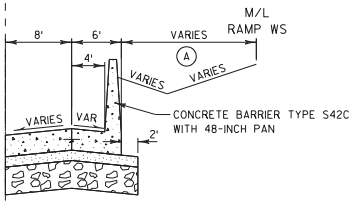


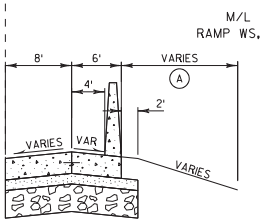

STA 173EW+09.66 TO STA 175EW+39.93




STA 175EW+39.93 TO STA 176EW+38.29




STA 163EW+00.00 TO STA 166EW+61.00




STA 162EW+50.00 TO STA 163EW+00.00
STA 166EW+61.00 TO STA 173EW+09.66

## TYPICAL FINISHED SECTION

### IH 94 EB

STA 162EW+00.00 TO STA 176EW+38.30

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

(1) FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 175EW+39.93 TO STA 176EW+38.30

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

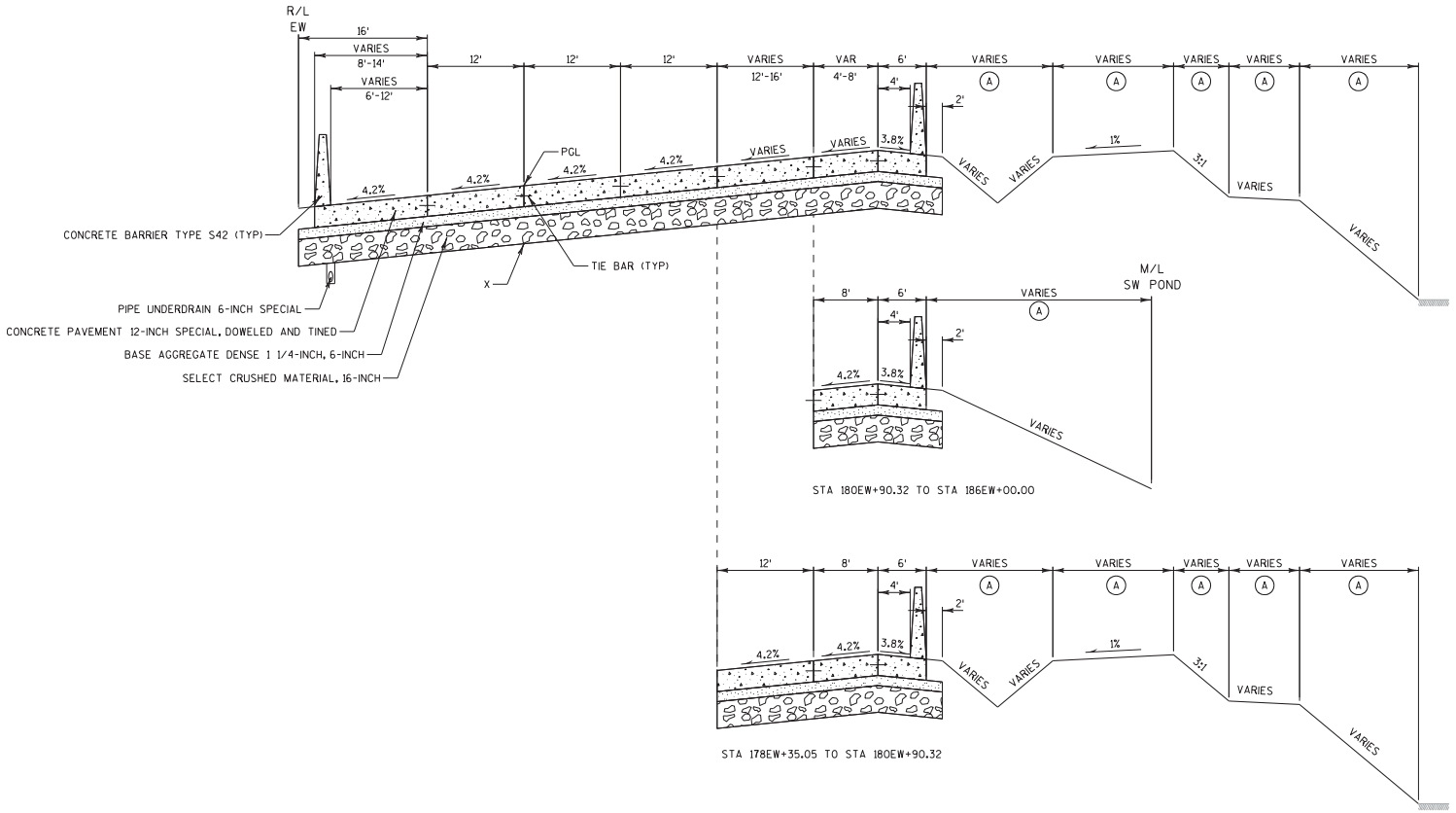
(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

NOTE

LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

Addendum No. 01
ID 1060-33-81
Revised Sheet 138
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 138 | E |
|---|---|---|---|---|---|




Addendum No. 01
ID 1060-33-81
Revised Sheet 139
August 17, 2015

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 176EW+38.30 TO STA 186EW+00.00 (1)

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

NOTE

LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

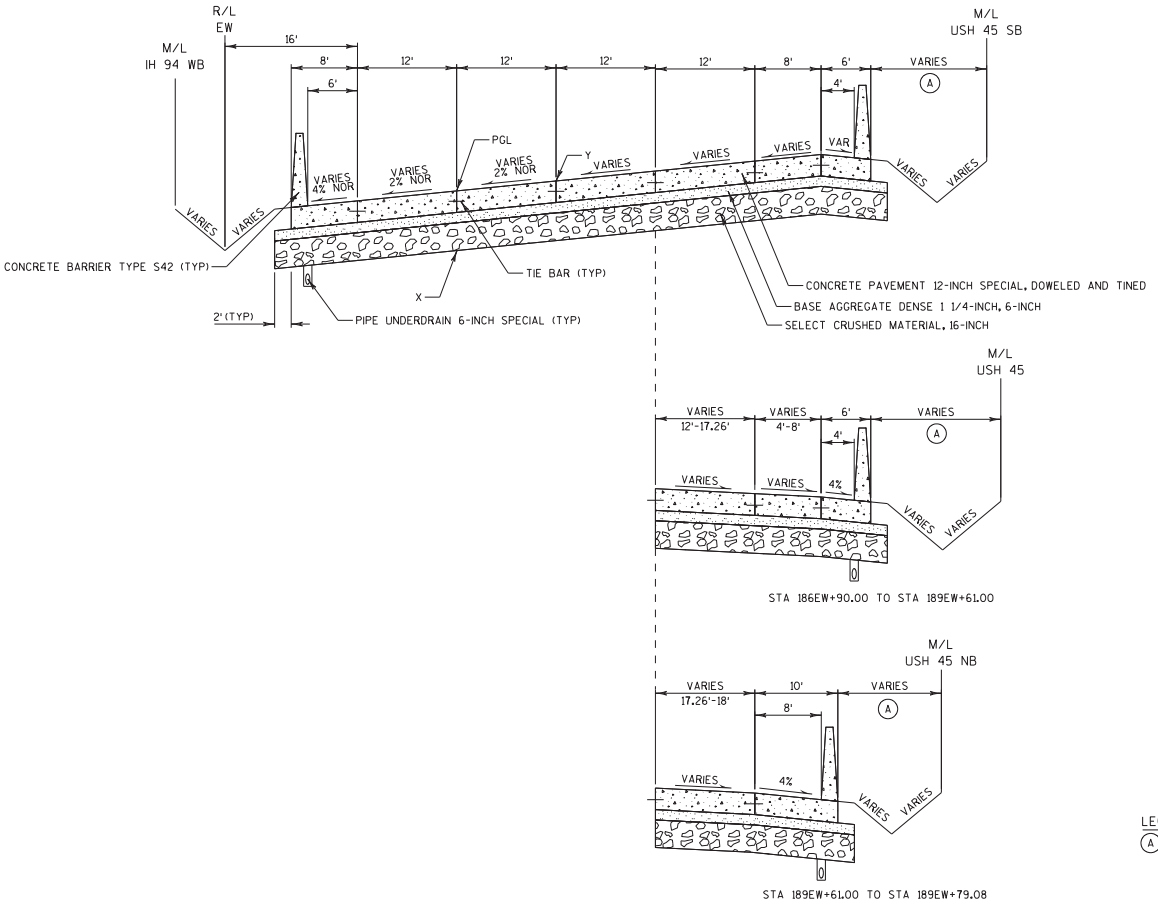
## TYPICAL FINISHED SECTION

### IH 94 EB

STA 176EW+38.30 TO STA 186EW+00.00

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 139 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\020405_ts_EW_EB.dgn PLOT DATE : 12-AUG-2015 16:30 PLOT BY : MSCD1S PLOT NAME : 020405_ts_EW_EB5 PLOT SCALE : 15.000003:1




## TYPICAL FINISHED SECTION

### IH 94 EB

STA 186EW+00.00 TO STA 189EW+79.08

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 186EW+00.00 TO STA 189EW+79.08 (1)

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

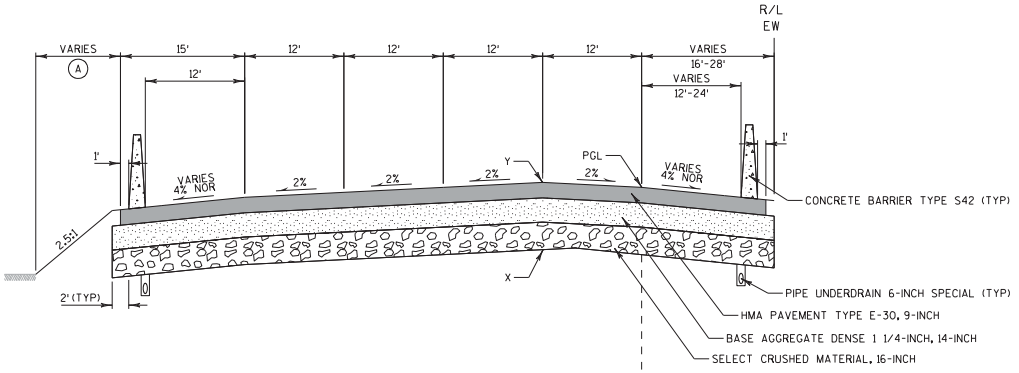
NOTE

LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

Addendum No. 01
ID 1060-33-81
Revised Sheet 140
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 140 | E |
|---|---|---|---|---|---|

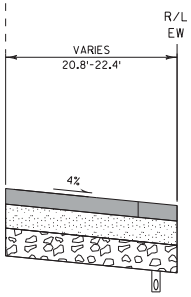
FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\020405_ts_EW_EB.dgn PLOT DATE : 12-AUG-2015 16:30 PLOT BY : MSCD1S PLOT NAME : 020405_ts_EW_EB6 PLOT SCALE : 15.000003:1



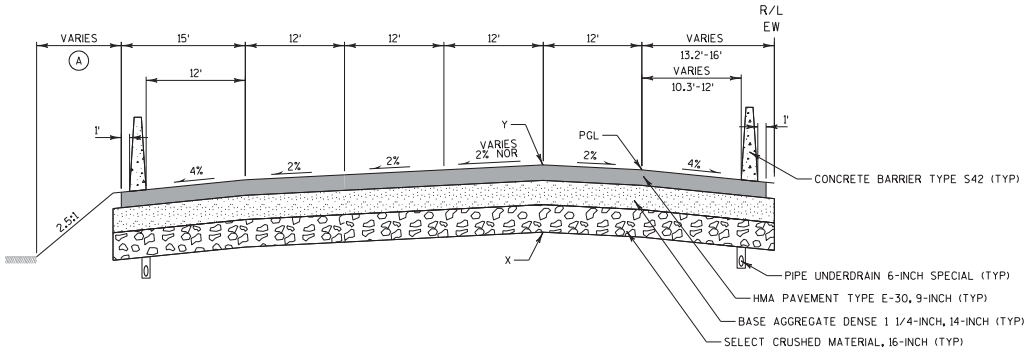

## TYPICAL FINISHED SECTION

### IH 94 WB

STA 91EW+80.00TO STA 99EW+19.76




STA 99EW+66.03 TO 95EW+64.43




## TYPICAL FINISHED SECTION

### IH 94 WB

STA 88EW+00.00 TO STA 91EW+80.00

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

(1) FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 88EW+00.00 TO STA 99EW+25.59

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

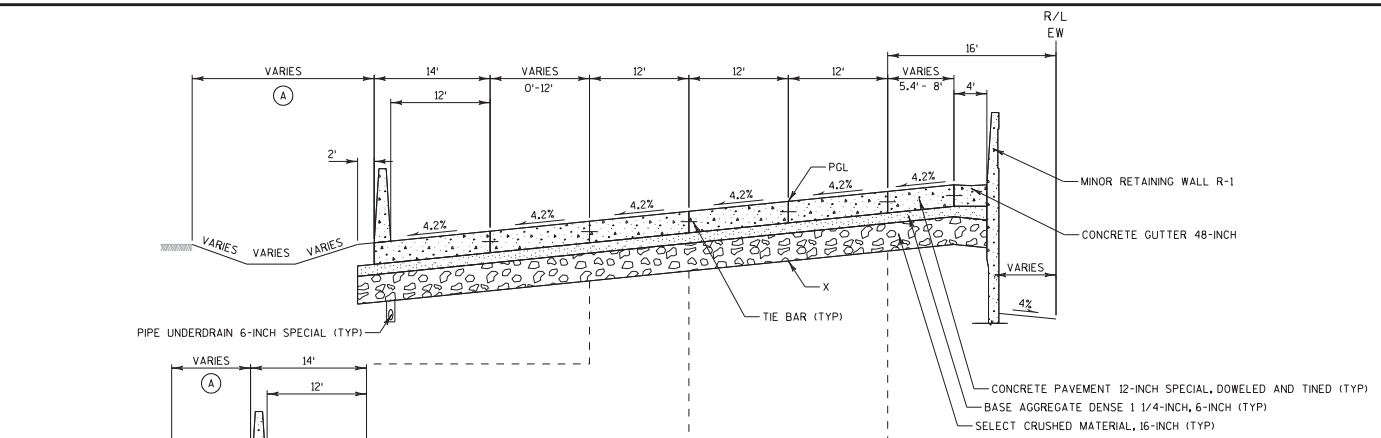
(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

NOTE

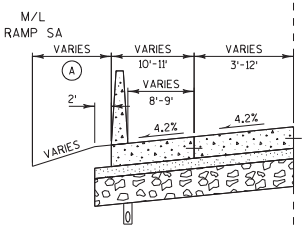
LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

Addendum No. 01
ID 1060-33-81
Revised Sheet 143
August 17, 2015

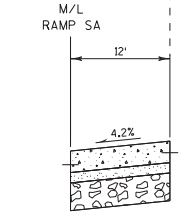
| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 143 | E |
|---|---|---|---|---|---|



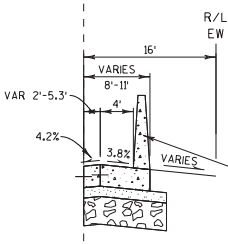

STA 164EW+81.89 TO STA 170EW+08.77



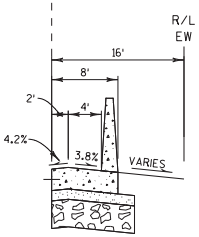

STA 170EW+08.77 TO STA 175EW+10.46



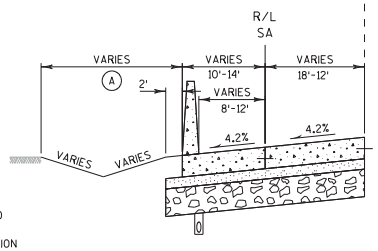

STA 175EW+10.46 TO STA 177EW+83.50




STA 182EW+13.80 TO STA 183EW+14.04




STA 183EW+14.04 TO STA 186EW+00.00




STA 177EW+83.50 TO STA 179EW+72.11

## TYPICAL FINISHED SECTION
### IH 94 WB

STA 165EW+20.00 TO STA 186EW+00.00

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

(1) FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 177EW+83.50 TO STA 186EW+00.00

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

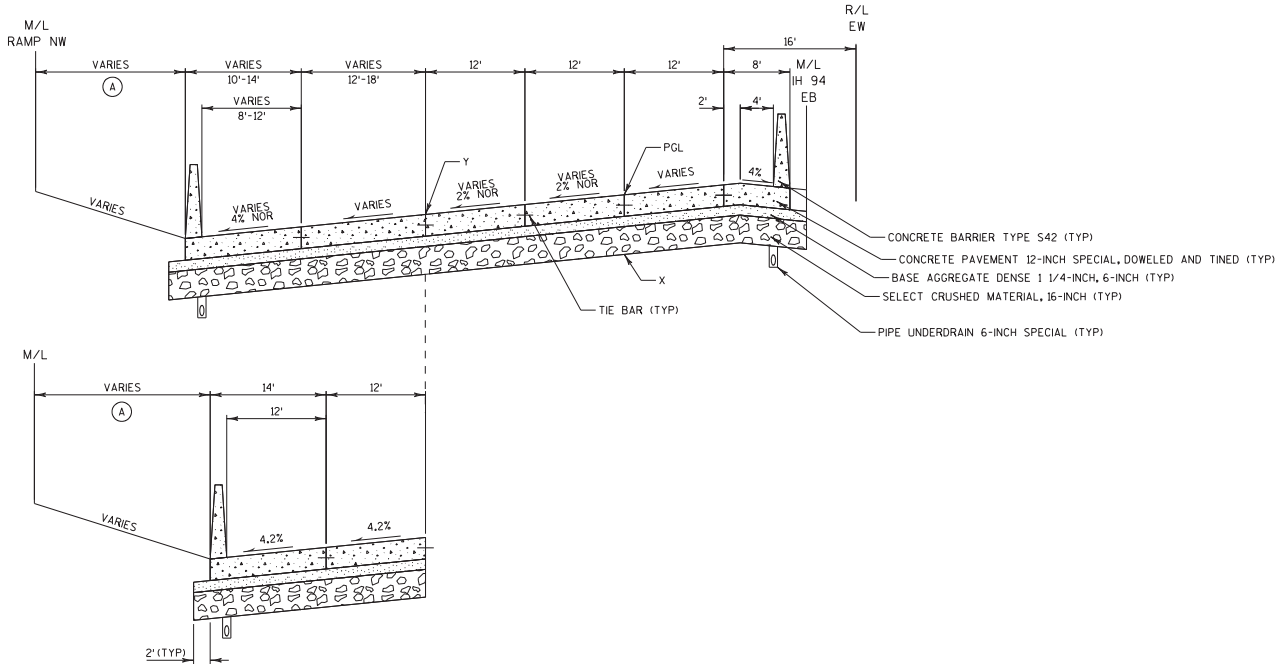
(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

NOTE

LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

Addendum No. 01
ID 1060-33-81
Revised Sheet 147
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 147 | E |
|---|---|---|---|---|---|




STA 186EW+00.00 TO STA 186EW+56.23

## TYPICAL FINISHED SECTION

### IH 94 WB

STA 186EW+00.00 TO STA 189EW+58.50

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

(1) FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 186EW+00.00 TO STA 188EW+40.33

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

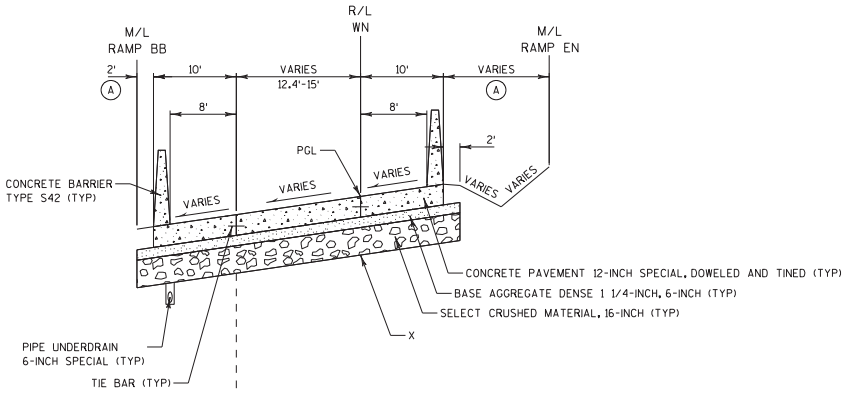
NOTE

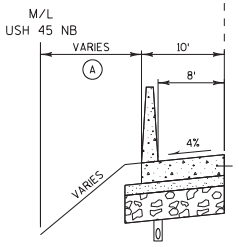
LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

Addendum No. 01
ID 1060-33-81
Revised Sheet 148
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 148 | E |
|---|---|---|---|---|---|

2




STA 602WN+20.15 TO STA 602WN+87.52

## TYPICAL FINISHED SECTION
## RAMP WN

STA 598WN+38.59 TO STA 602WN+87.52

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

(1) FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 598WN+38.59 TO STA 602WN+87.52

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

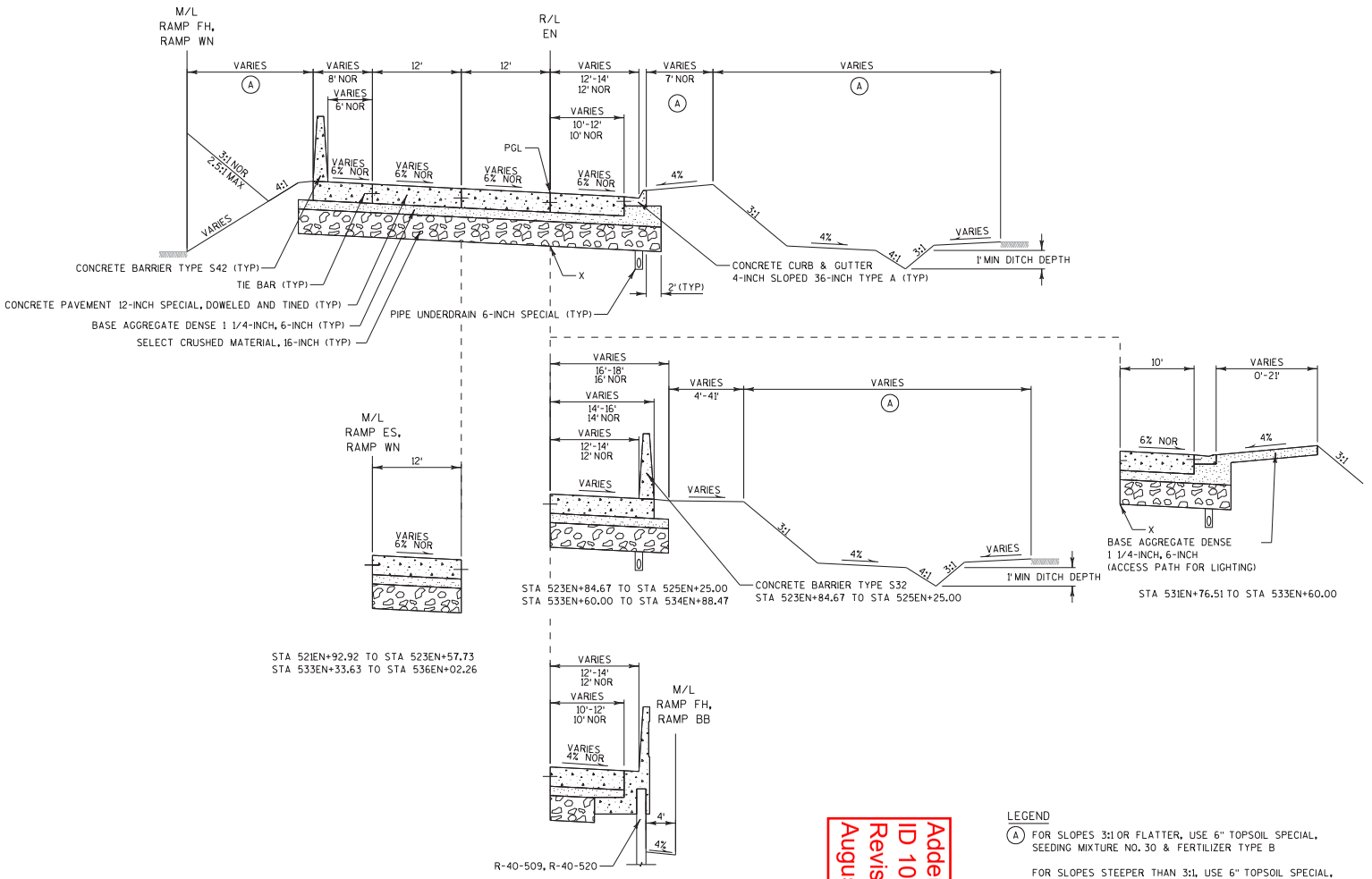
(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

NOTE

LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

Addendum No. 01
ID 1060-33-81
Revised Sheet 159
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 159 | E |
|---|---|---|---|---|---|




## TYPICAL FINISHED SECTION
## RAMP EN

STA 521EN+92.92 TO STA 536EN+02.26

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

Addendum No. 01
ID 1060-33-81
Revised Sheet 167
August 17, 2015

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

1 FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 525EN+74.79 TO STA 533EN+33.63 (LEFT)

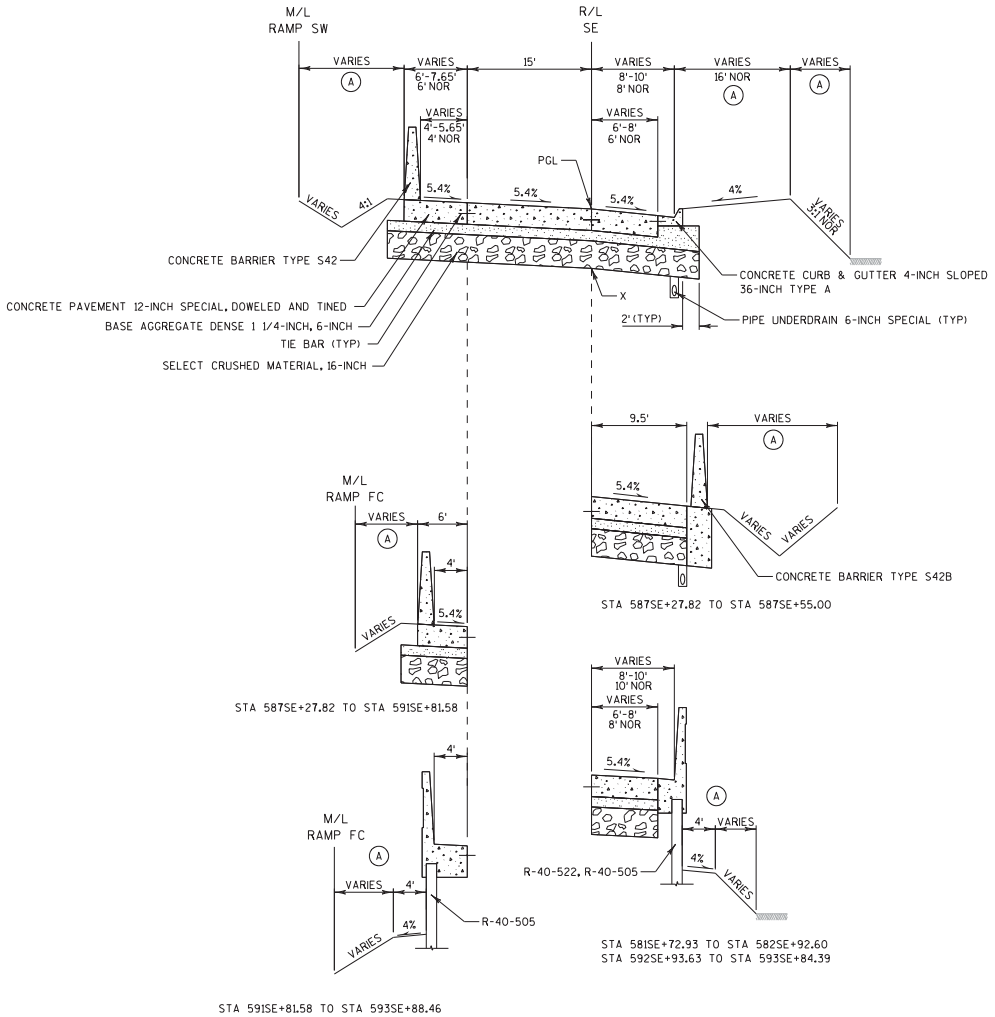
(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

NOTE

LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 167 | E |
|---|---|---|---|---|---|




## TYPICAL FINISHED SECTION

### RAMP SE

STA 581SE+72.93 TO STA 582SE+92.60
STA 587SE+27.82 TO STA 593SE+88.46

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

(1) FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 587SE+27.82 TO STA 593SE+88.46 (LEFT)

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

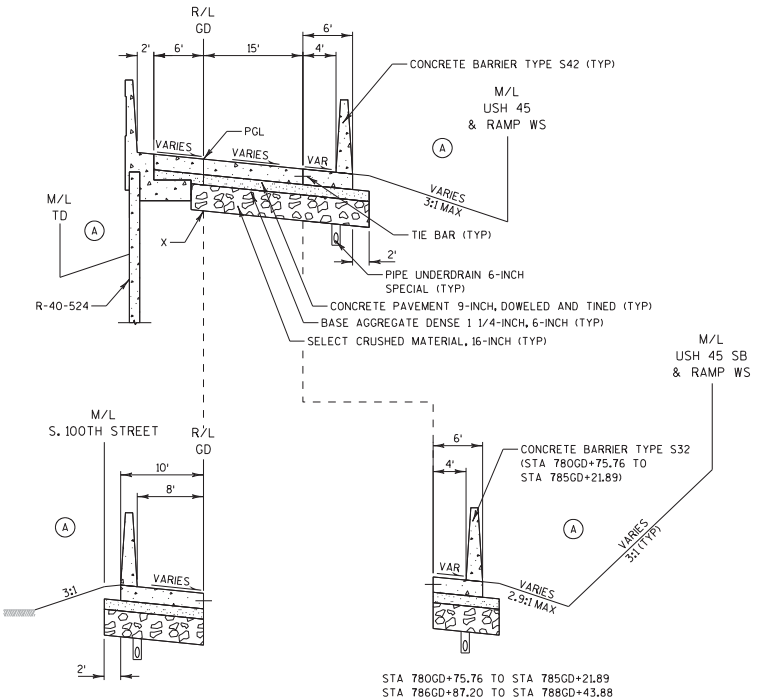
(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

NOTE

LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

Addendum No. 01
ID 1060-33-81
Revised Sheet 170
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 170 | E |
|---|---|---|---|---|---|




STA 784GD+12.15 TO STA 785GD+14.66
STA 786GD+80.35 TO STA 788GD+43.88

STA 780GD+75.76 TO STA 785GD+21.89
STA 786GD+87.20 TO STA 788GD+43.88

## TYPICAL FINISHED SECTION

### RAMP GD

STA 780GD+75.76 TO STA 785GD+21.89
STA 786GD+80.35 TO STA 788GD+43.88

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

(1) FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 786GD+80.35 TO STA 788GD+43.88 (LEFT)

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

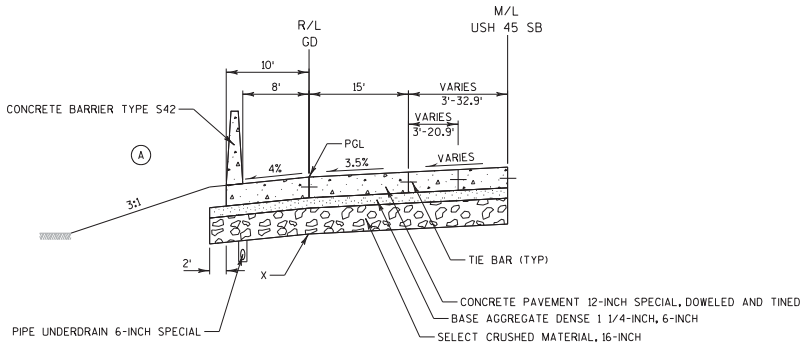
NOTE

LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

Addendum No. 01
ID 1060-33-81
Revised Sheet 189
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 189 | E |
|---|---|---|---|---|---|

2




Addendum No. 01
ID 1060-33-81
Revised Sheet 190
August 17, 2015

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 788GD+43.88 TO STA 791GD+08.37 (LEFT) (1)

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

NOTE

LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

NOTES

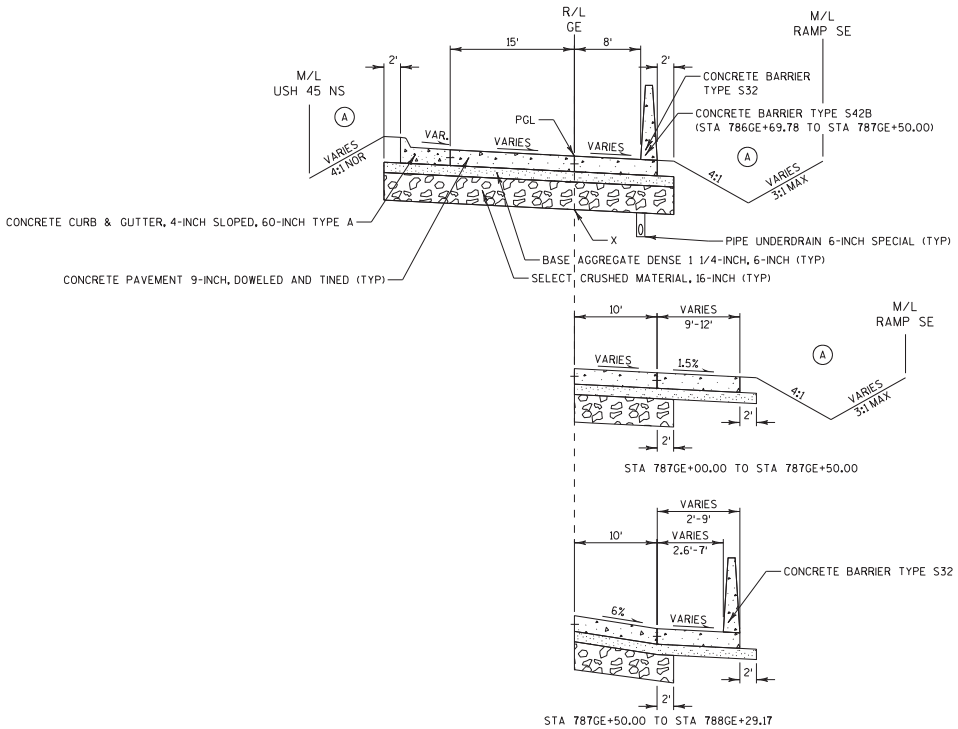
PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

## TYPICAL FINISHED SECTION

### RAMP GD

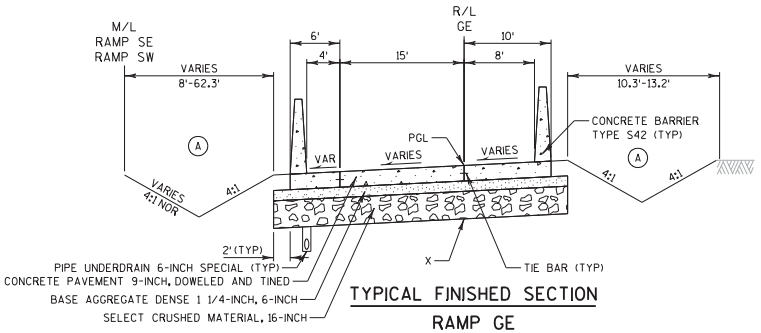
STA 788GD+43.88 TO STA 791GD+08.37

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 190 | E |
|---|---|---|---|---|---|




## TYPICAL FINISHED SECTION
## RAMP GE

STA 786GE+69.78 TO STA 788GE+29.17




## TYPICAL FINISHED SECTION
## RAMP GE

STA 782GE+32.90 TO STA 785GE+32.06

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS SECTION
Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 786GE+69.78 TO STA 788GE+29.17 (RIGHT) (1)

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

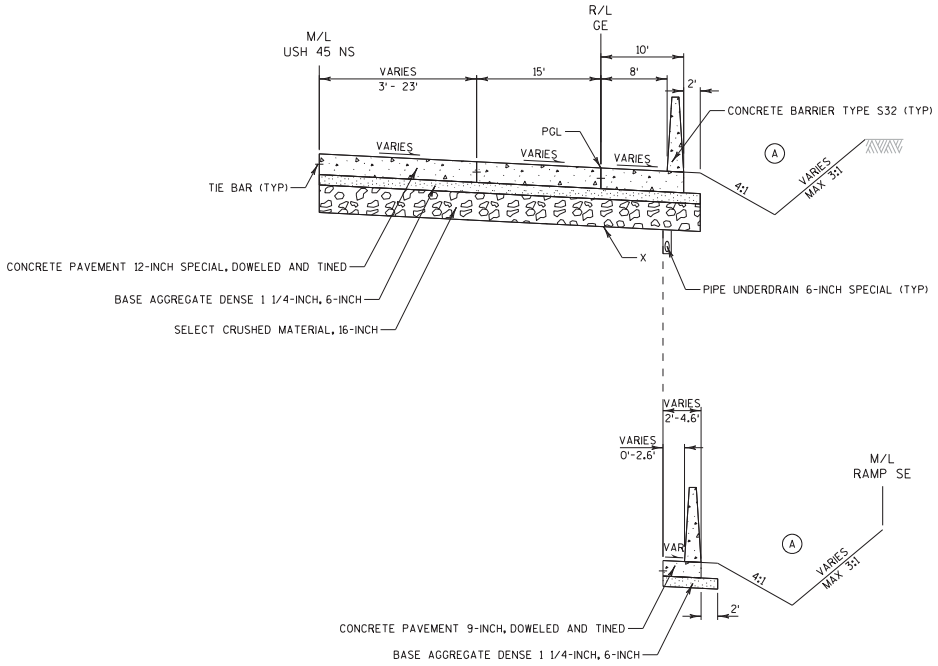
NOTE

LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

Addendum No. 01
ID 1060-33-81
Revised Sheet 193
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 193 | E |
|---|---|---|---|---|---|

2




STA 788GE+29.17 TO STA 788GE+72.77

## TYPICAL FINISHED SECTION

### RAMP GE

STA 788GE+29.17 TO STA 789GE+94.84

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION

X = POINT REFERRED TO ON CROSS SECTION

Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 788GE+29.17 TO STA 789GE+94.84 (1)

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

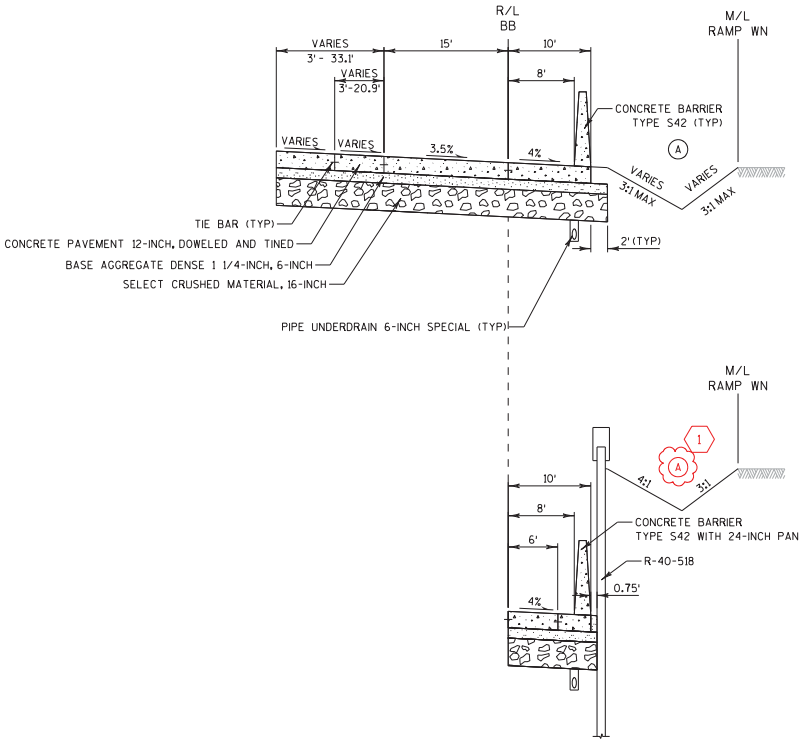
NOTE

LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

Addendum No. 01
ID 1060-33-81
Revised Sheet 194
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 194 | E |
|---|---|---|---|---|---|

2




STA 800BB+73.54 TO STA 802BB+24.41

## TYPICAL FINISHED SECTION

### RAMP BB

STA 799BB+61.09 TO STA 802BB+24.41

Addendum No. 01
ID 1060-33-81
Revised Sheet 198
August 17, 2015

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 799BB+61.09 TO STA 802BB+24.41 (1)

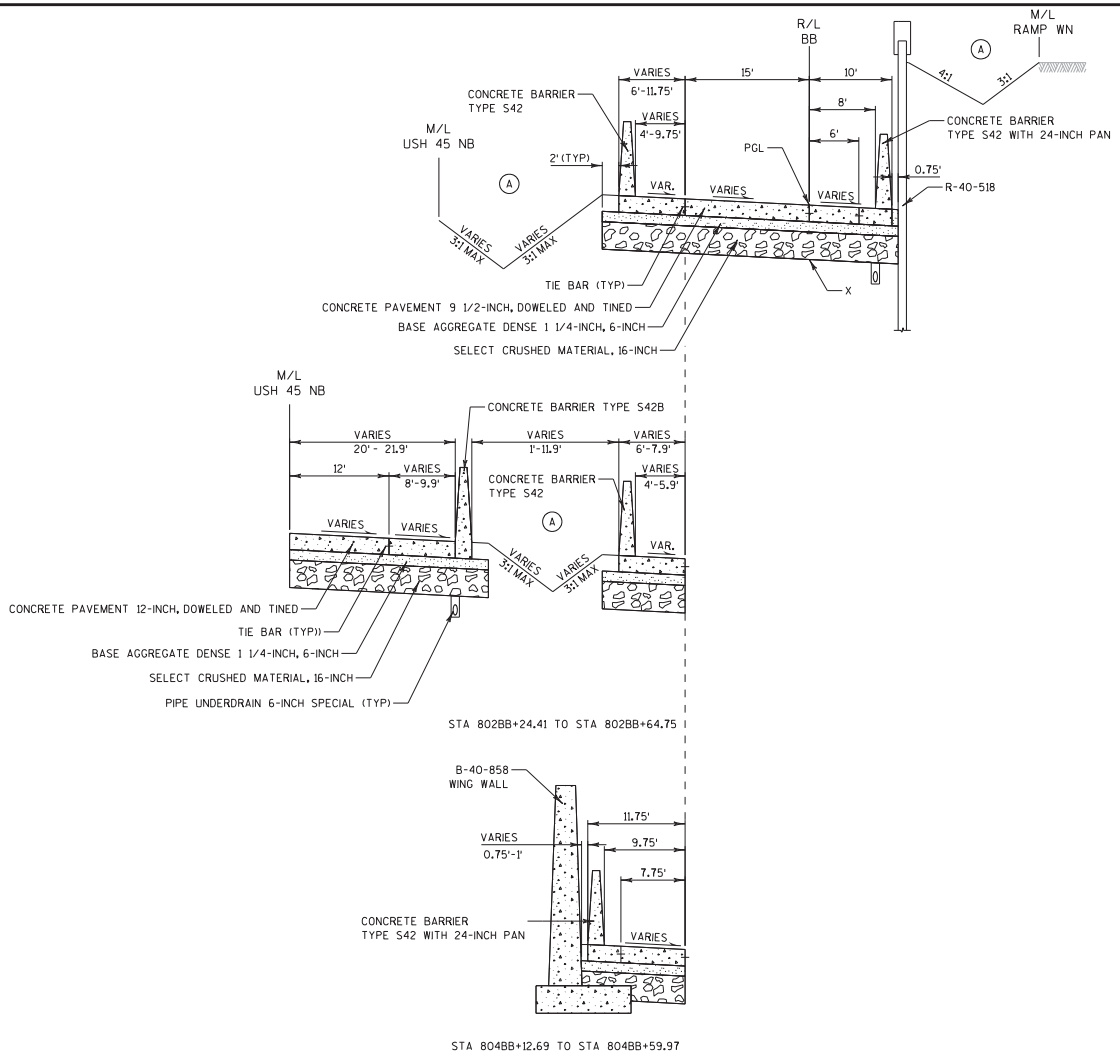
(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

NOTE

LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 198 | E |
|---|---|---|---|---|---|




## TYPICAL FINISHED SECTION
## RAMP BB

STA 802BB+24.41 TO STA 804BB+59.97

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS SECTION
Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

(A) FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

(1) FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 802BB+24.41 TO STA 804BB+59.97

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

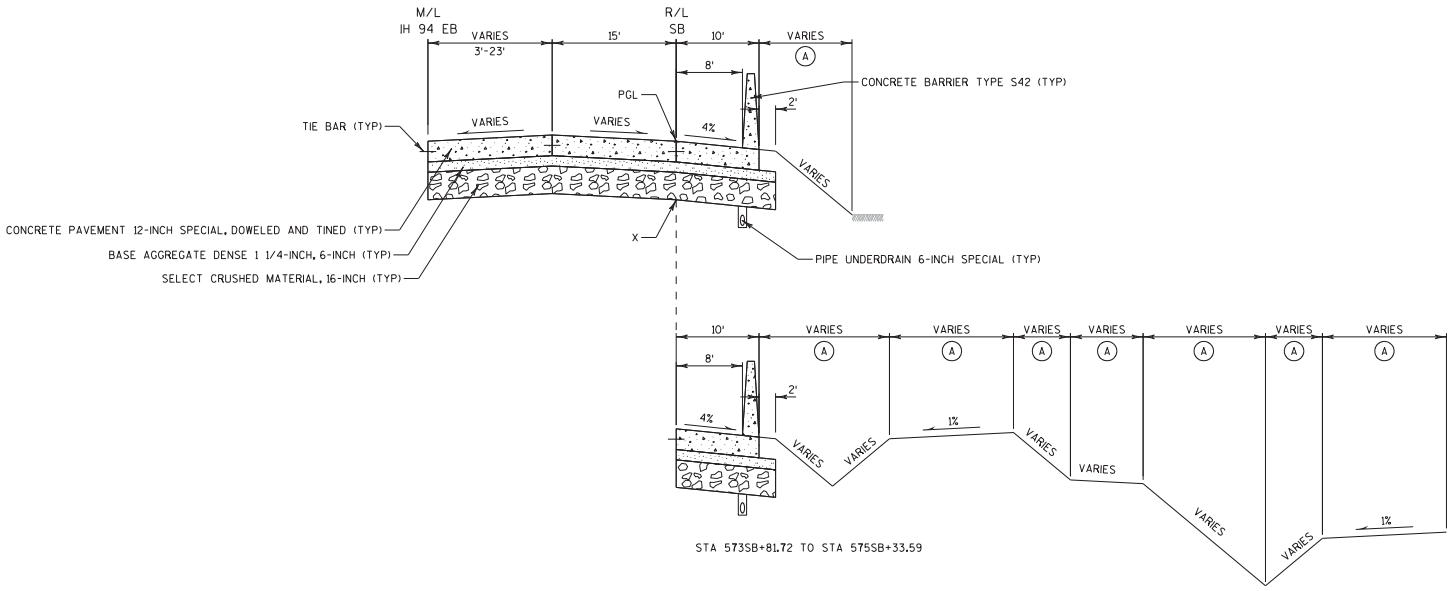
NOTE

LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

Addendum No. 01
ID 1060-33-81
Revised Sheet 199
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 199 | E |
|---|---|---|---|---|---|

2




STA 573SB+81.72 TO STA 575SB+33.59

## TYPICAL FINISHED SECTION

## RAMP SB

STA 572SB+99.35 TO STA 575SB+33.59

Addendum No. 01
ID 1060-33-81
Revised Sheet 208
August 17, 2015

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

(1) FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A
STA 574SB+03.79 TO STA 575SB+33.59

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

NOTE

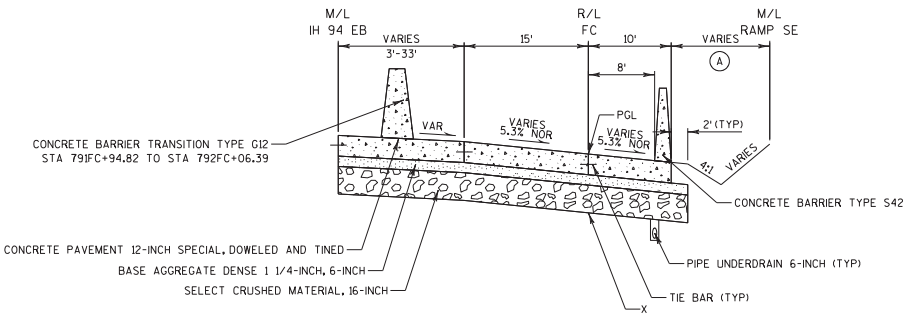
LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 208 | E |
|---|---|---|---|---|---|

2




## TYPICAL FINISHED SECTION

### RAMP FC

STA 789FC+80.66 TO STA 792FC+06.42

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

(1) FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 789FC+80.66 TO STA 792FC+06.42 (RIGHT)

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

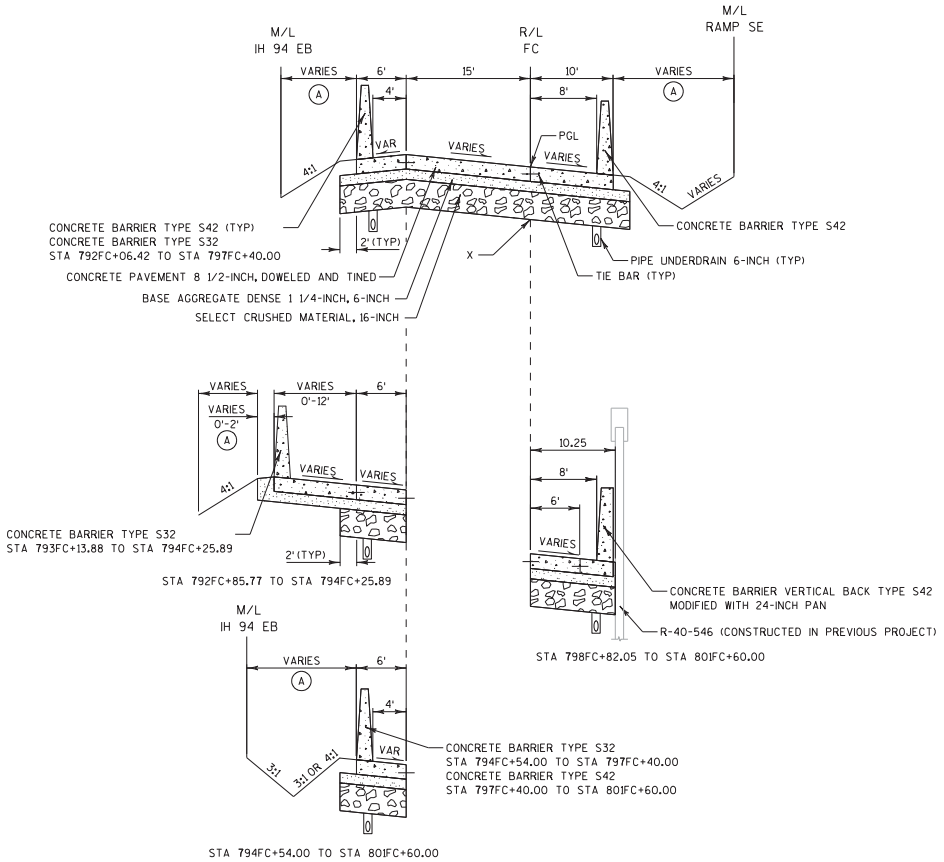
NOTE

LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

Addendum No. 01
ID 1060-33-81
Revised Sheet 216
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 216 | E |
|---|---|---|---|---|---|

2




## TYPICAL FINISHED SECTION

### RAMP FC

STA 792FC+06.42 TO STA 801FC+60.00

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

(1) FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 792FC+06.42 TO STA 795FC+47.70 (RIGHT)

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

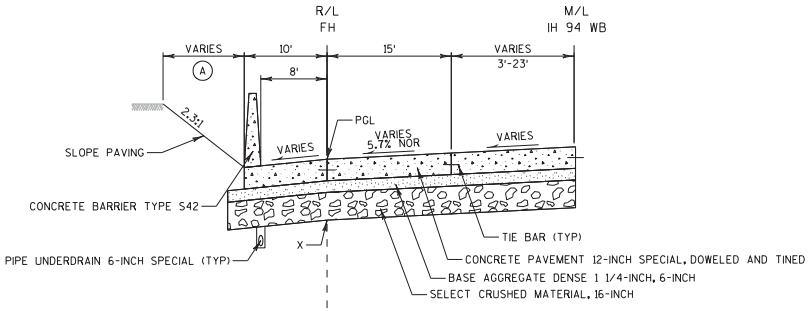
NOTE

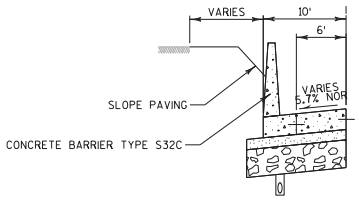
LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

Addendum No. 01
ID 1060-33-81
Revised Sheet 217
August 17, 2015

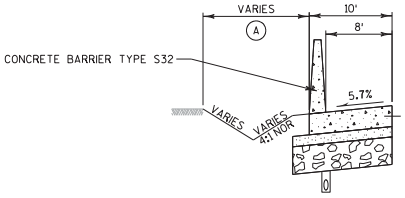
| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 217 | E |
|---|---|---|---|---|---|

2




STA 789+80.00 TO STA 791FH+15.00




STA 791+15.00 TO STA 791FH+45.16

## TYPICAL FINISHED SECTION

## RAMP FH

STA 789FH+56.15 TO STA 791FH+45.16

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 790FH+35.95 TO STA 791FH+45.16 (LEFT) (1)

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

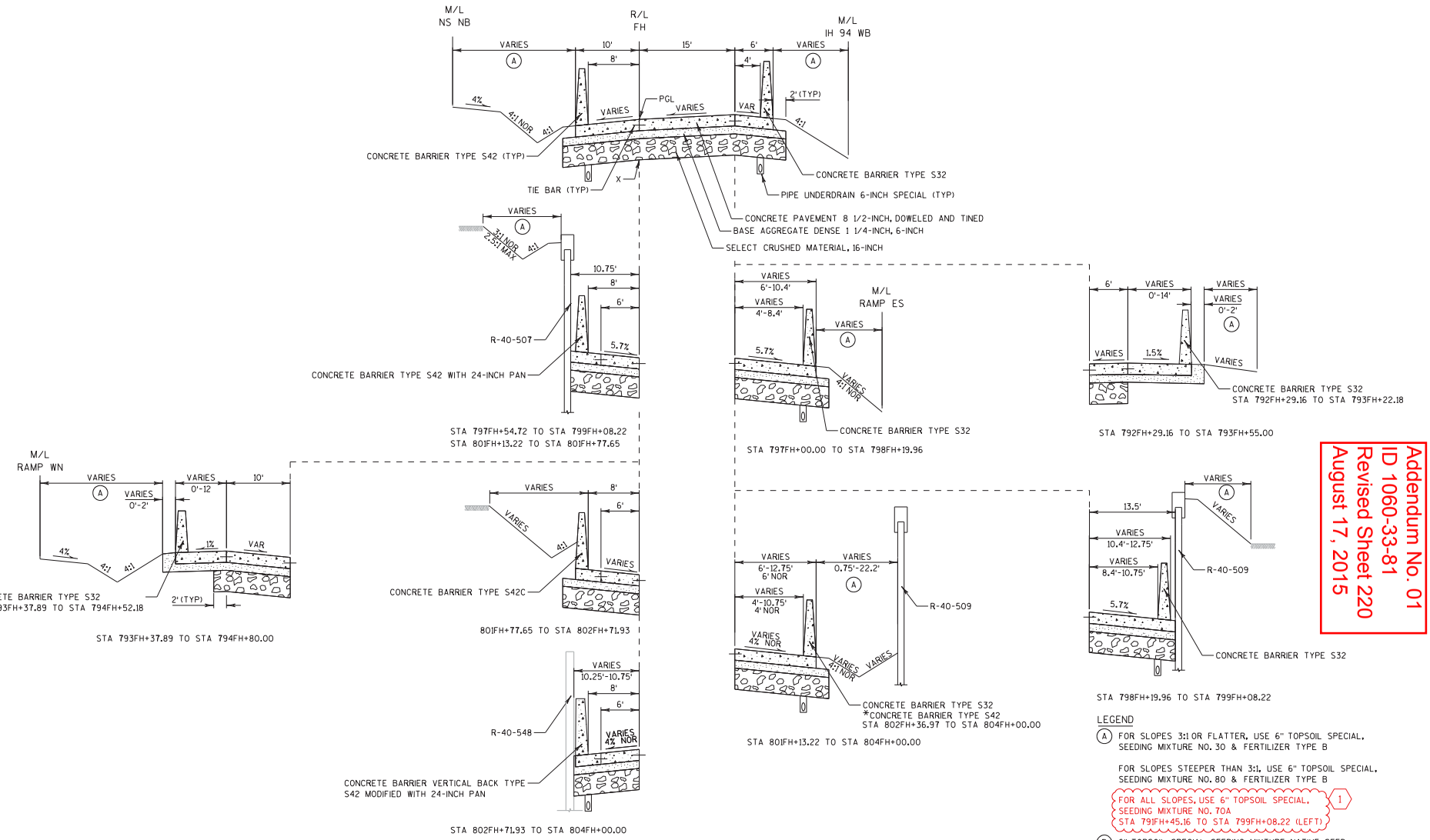
(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

NOTE

LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

Addendum No. 01
ID 1060-33-81
Revised Sheet 219
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 219 | E |
|---|---|---|---|---|---|




## TYPICAL FINISHED SECTION

### RAMP FH

STA 791FH+45.16 TO STA 799FH+08.22
STA 801FH+13.22 TO STA 804FH+00.00

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 791FH+45.16 TO STA 799FH+08.22 (LEFT) (1)

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

NOTE

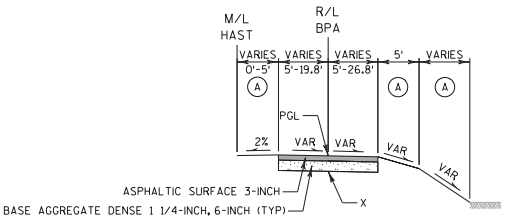
LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

Addendum No. 01
ID 1060-33-81
Revised Sheet 220
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 220 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\020458_ts_FH.dgn PLOT DATE : 12-AUG-2015 16:31 PLOT BY : MSCD1S PLOT NAME : 020458_ts_FH1 PLOT SCALE : 15:1

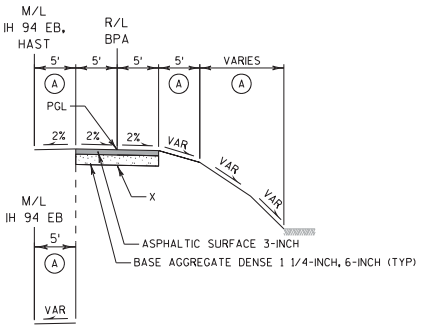
WISDOT/CADDS SHEET 42




## TYPICAL FINISHED SECTION

### BIKE PATH A

STA 12BPA+77.39 TO STA 13BPA+19.05

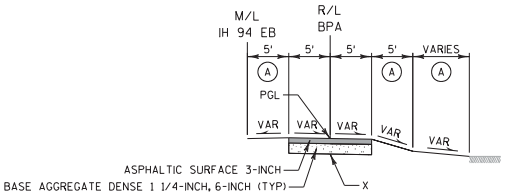



STA 10BPA+25.00 TO STA 10BPA+75.00

## TYPICAL FINISHED SECTION

### BIKE PATH A

STA 10BPA+25.00 TO STA 12BPA+77.39




## TYPICAL FINISHED SECTION

### BIKE PATH A

STA 10BPA+10.29 TO STA 10BPA+25.00

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

(1) FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A
STA 10BPA+10.29 TO STA 13BPA+19.05

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

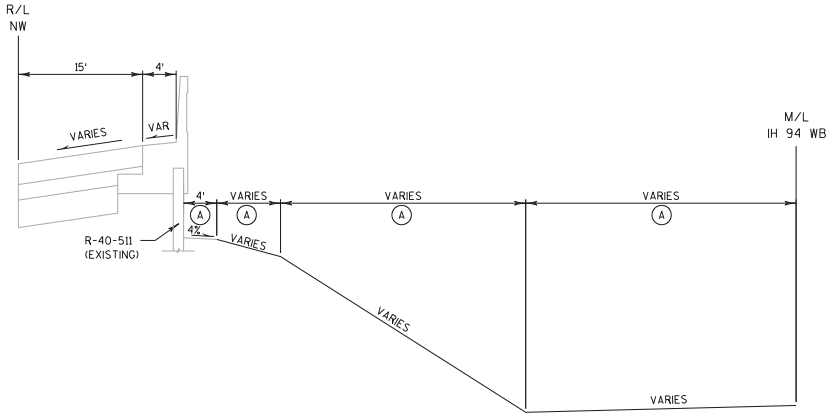
(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

NOTE

LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

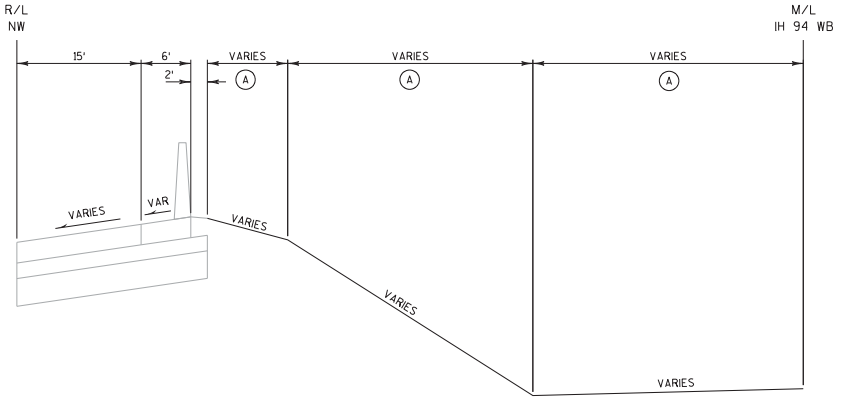
Addendum No. 01
ID 1060-33-81
Revised Sheet 234
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 234 | E |
|---|---|---|---|---|---|




## TYPICAL FINISHED SECTION
### NW INFIELD GRADING

STA 490NW+13.51 TO 491NW+60.45




## TYPICAL FINISHED SECTION
### NW INFIELD GRADING

STA 484NW+16.48 TO 490NW+13.51

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

FOR ALL SLOPES, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 70A STA 484NW+16.48 TO STA 491NW+60.45 (1)

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

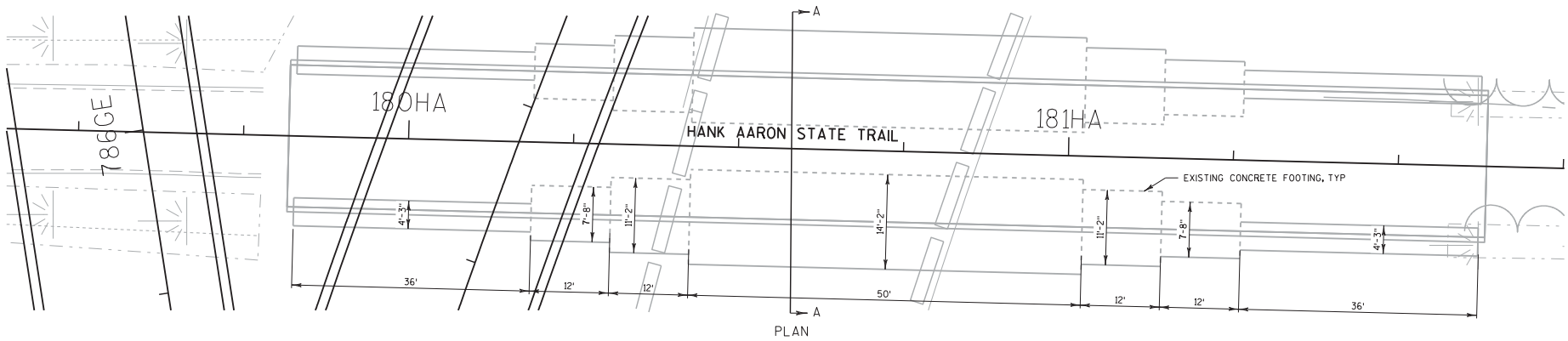
(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

NOTE

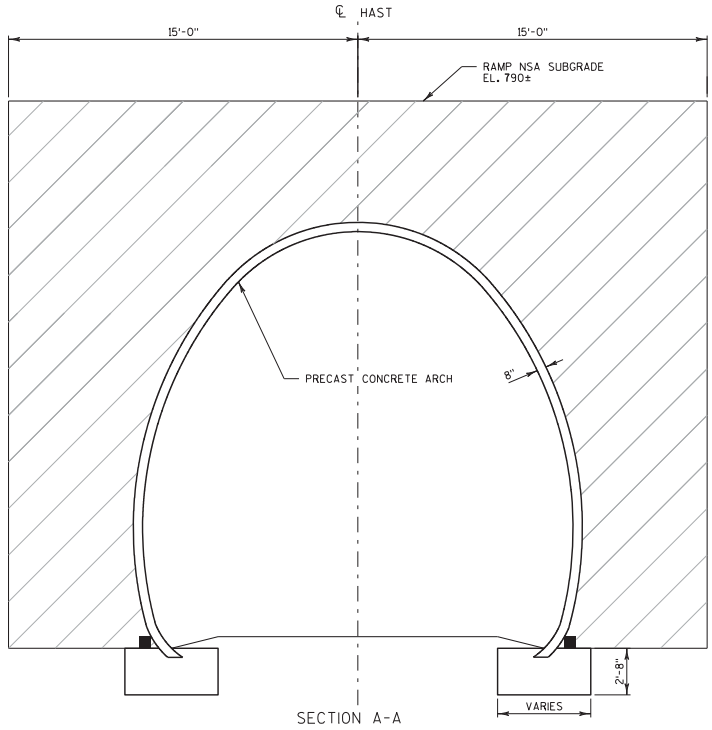
LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

Addendum No. 01
ID 1060-33-81
Revised Sheet 272
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 272 | E |
|---|---|---|---|---|---|




PLAN



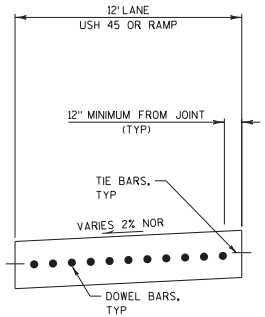

SECTION A-A

## TEMPORARY UNDERPASS TO BE REMOVED

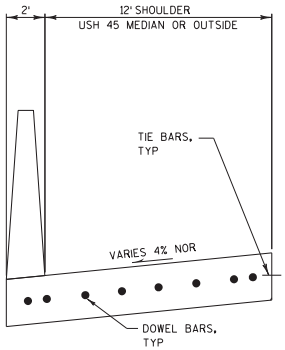
REMOVING OLD STRUCTURE 786GE+00 (1)

Addendum No. 01
ID 1060-33-81
Revised Sheet 317
August 17, 2015

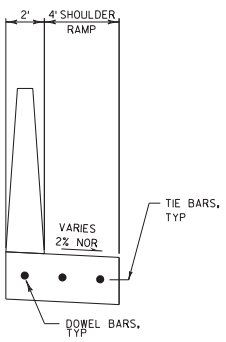
| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CONSTRUCTION DETAILS | SHEET 317 | E |
|---|---|---|---|---|---|



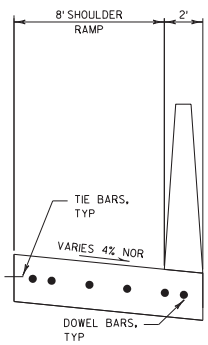

ELEVATION VIEW



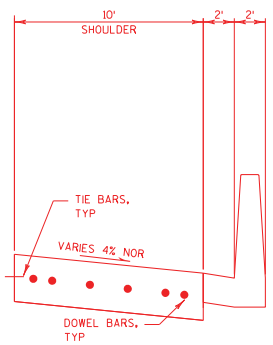

ELEVATION VIEW



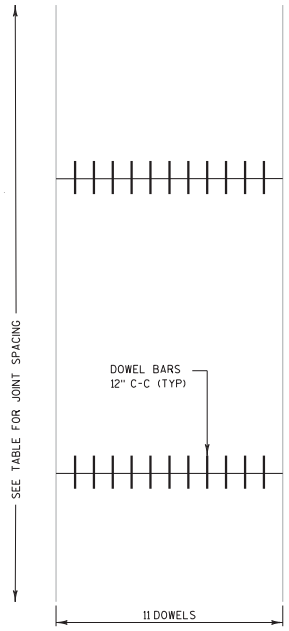

ELEVATION VIEW




ELEVATION VIEW

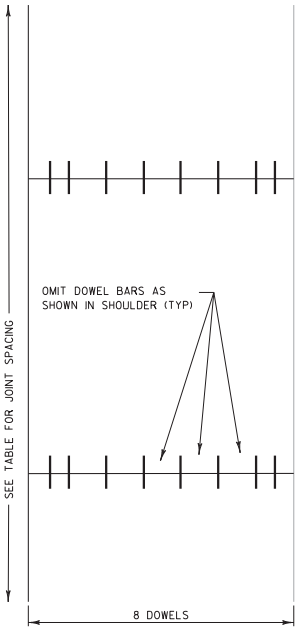



ELEVATION VIEW



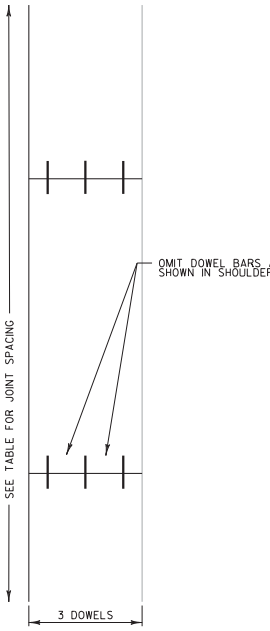

PLAN VIEW

HPC PAVEMENT JOINT DETAIL
12-FT LANE



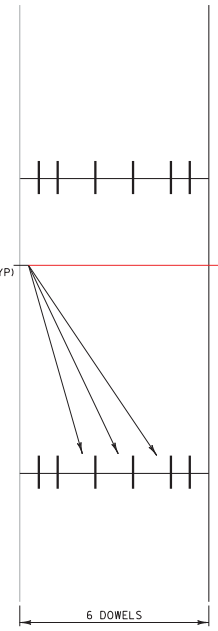

PLAN VIEW

HPC PAVEMENT JOINT DETAIL
12-FT SHOULDER



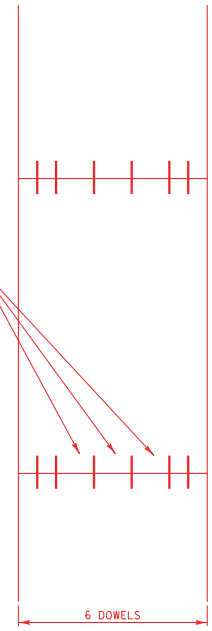

PLAN VIEW

HPC PAVEMENT JOINT DETAIL
4-FT SHOULDER




PLAN VIEW

HPC PAVEMENT JOINT DETAIL
8-FT SHOULDER




PLAN VIEW

HPC PAVEMENT JOINT DETAIL
10-FT SHOULDER

1

Addendum No. 01
ID 1060-33-81
Revised Sheet 329
August 17, 2015

NOTES

1) ALL DRIVING LANES TO HAVE DOWEL BARS SPACED 12 INCHES FROM CENTER TO CENTER.

2) DETAILS NOT SHOWN SHALL CONFORM TO STANDARD DETAIL DRAWINGS.

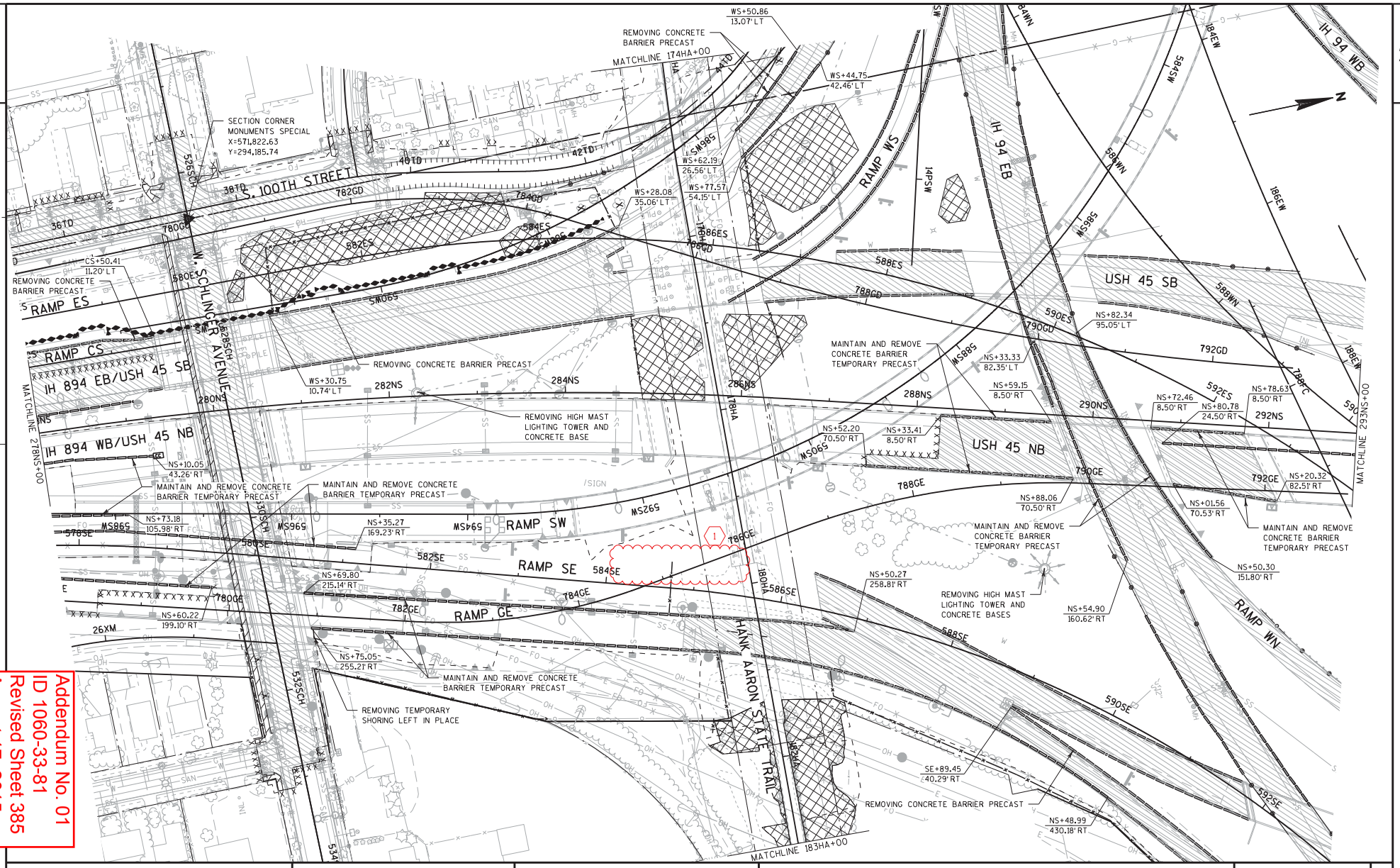
3) LOCATE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS 12 INCHES FROM THE EDGE OF PAVEMENT OR LONGITUDINAL JOINT.

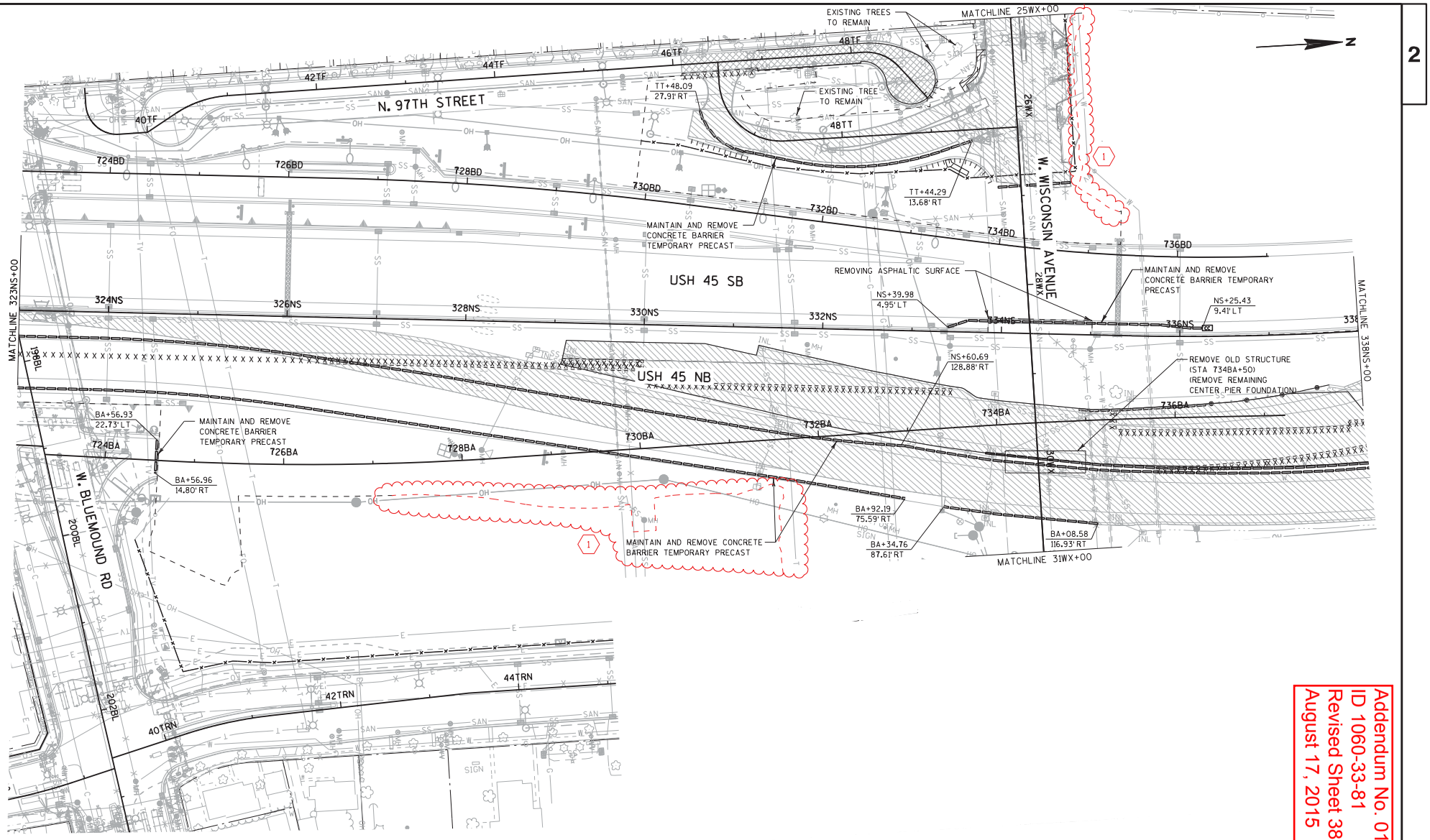
4) TREAT SAWED SURFACES OF TRANSVERSE AND LONGITUDINAL JOINTS WITH SILANE SEALANT.

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

| PAVEMENT DEPTH (D) | DOWEL BAR DIAMETER | CONTRACTION JOINT SPACING |
|---|---|---|
| 12" | 1 1/2" | 15' |

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CONSTRUCTION DETAILS | SHEET 329 | E |
|---|---|---|---|---|---|

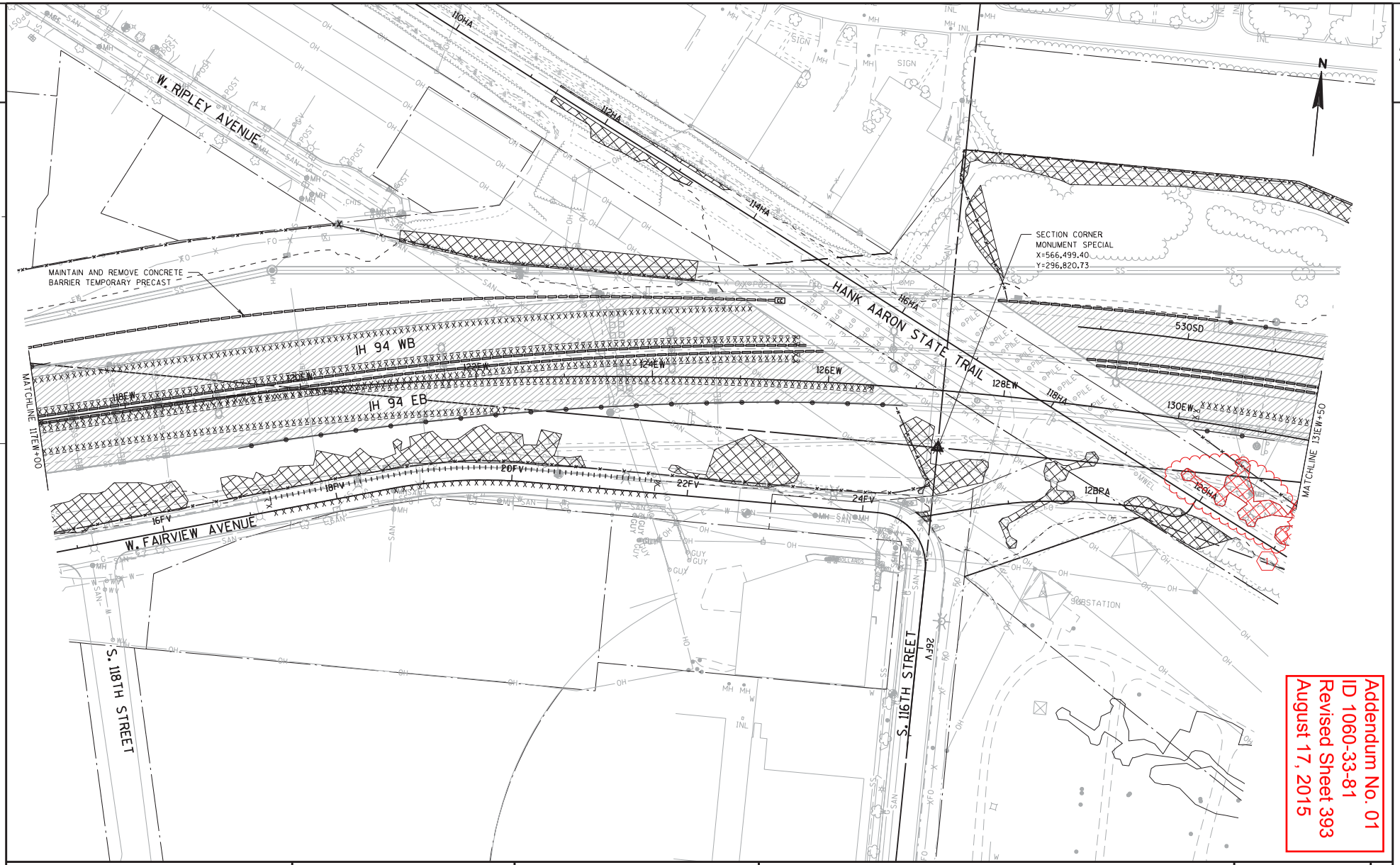

2
2
IH 94 WB
IH 94 EB
USH 45 SB
USH 45 NB
RAMP WS
RAMP SW
RAMP SE
RAMP GE
RAMP WN
RAMP ES
RAMP CS
IH 894 EB/USH 45 SB
IH 894 WB/USH 45 NB
S. 100TH STREET
W. SCHLINGER AVENUE
HANK AARON STATE TRAIL
MATCHLINE 174HA+00
MATCHLINE 178NS+00
MATCHLINE 183HA+00
MATCHLINE 293NS+00
SECTION CORNER MONUMENTS SPECIAL X=571,822.63 Y=294,185.74
REMOVING CONCRETE BARRIER PRECAST
REMOVING HIGH MAST LIGHTING TOWER AND CONCRETE BASE
REMOVING HIGH MAST LIGHTING TOWER AND CONCRETE BASES
MAINTAIN AND REMOVE CONCRETE BARRIER TEMPORARY PRECAST
REMOVING TEMPORARY SHORING LEFT IN PLACE
WS+50.86 13.07' LT
WS+44.75 42.46' LT
WS+62.19 26.56' LT
WS+77.57 54.15' LT
WS+28.08 35.06' LT
WS+30.75 10.74' LT
CS+50.41 11.20' LT
NS+10.05 43.26' RT
NS+73.18 105.98' RT
NS+35.27 169.23' RT
NS+69.80 215.14' RT
NS+60.22 199.10' RT
NS+75.05 255.21' RT
NS+82.34 95.05' LT
NS+33.33 82.35' LT
NS+59.15 8.50' RT
NS+52.20 70.50' RT
NS+33.41 8.50' RT
NS+72.46 8.50' RT
NS+78.63 8.50' RT
NS+80.78 24.50' RT
NS+20.32 82.51' RT
NS+88.06 70.50' RT
NS+01.56 70.53' RT
NS+50.30 151.80' RT
NS+50.27 258.81' RT
NS+54.90 160.62' RT
SE+89.45 40.29' RT
NS+48.99 430.18' RT
Addendum No. 01
ID 1060-33-81
Revised Sheet 385
August 17, 2015
PROJECT NO: 1060-33-81
HWY: IH 894/IH 94/USH 45
COUNTY: MILWAUKEE
REMOVAL PLANS
SHEET 385
E
FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\021107_rm.dgn
PLOT DATE : 10-AUG-2015 14:17
PLOT BY : MSCD1S
PLOT NAME : 021107_rm
PLOT SCALE : 100:1
WISDOT/CADDS SHEET 42




Addendum No. 01
ID 1060-33-81
Revised Sheet 388
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | REMOVAL PLANS | SHEET 388 | E |
|---|---|---|---|---|---|

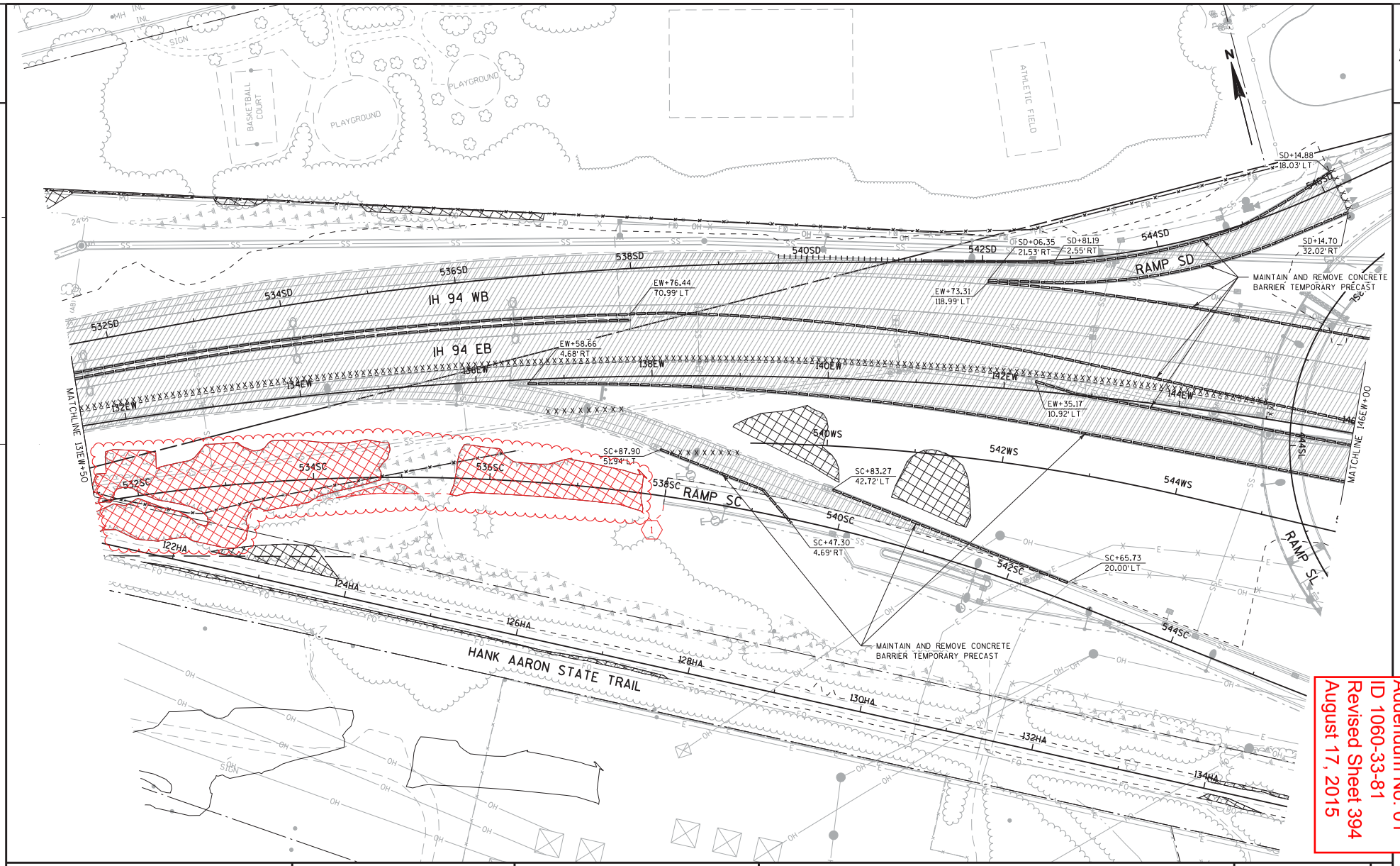
FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\021110_rm.dgn PLOT DATE : 12-AUG-2015 17:45 PLOT BY : MSCDMY PLOT NAME : 021110_rm PLOT SCALE : 100:1




Addendum No. 01
ID 1060-33-81
Revised Sheet 393
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | REMOVAL PLANS | SHEET 393 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\021115_rm.dgn PLOT DATE : 12-AUG-2015 12:22 PLOT BY : MSCD1S PLOT NAME : 021115_rm PLOT SCALE : 100:1

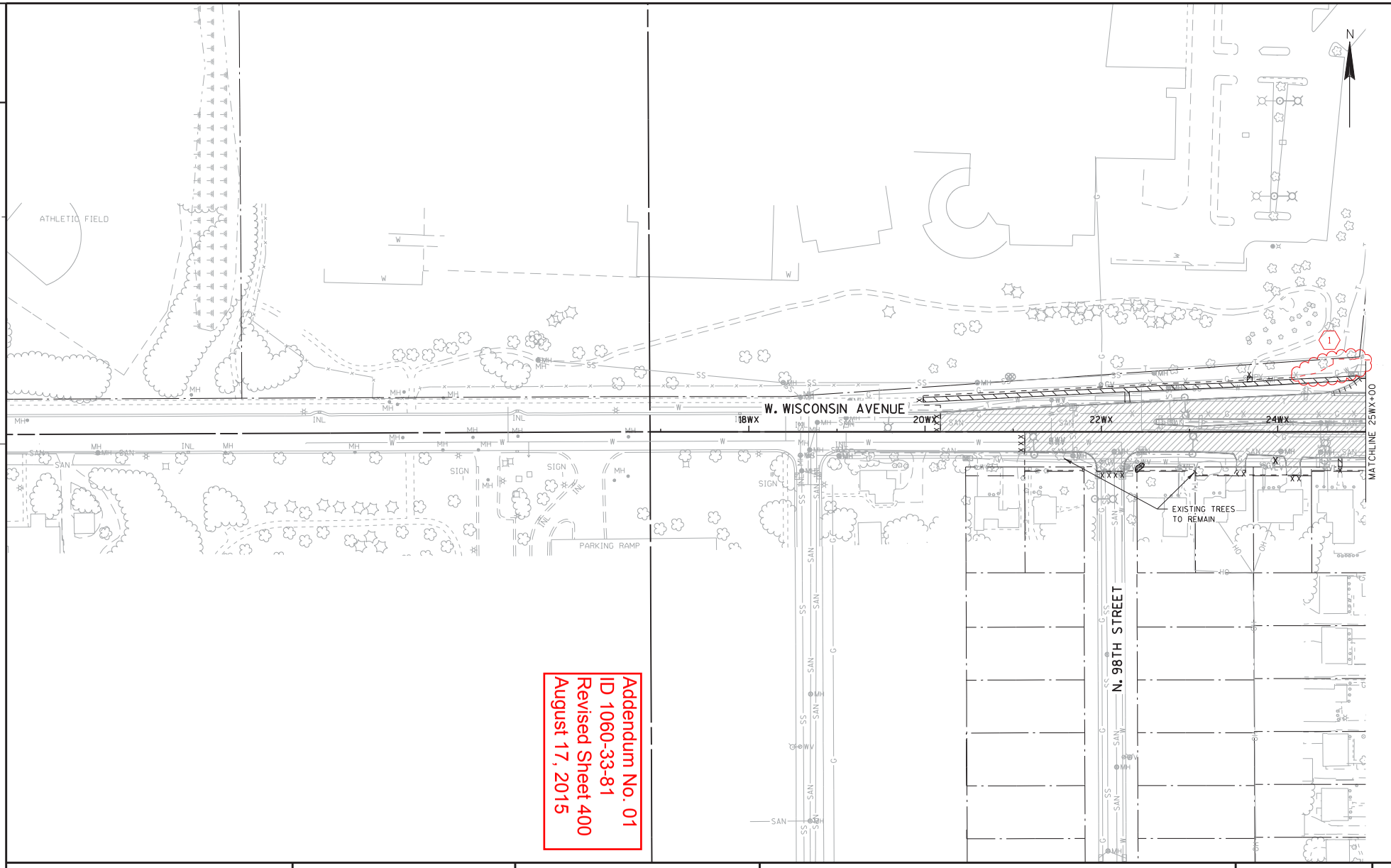



Addendum No. 01
ID 1060-33-81
Revised Sheet 394
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | REMOVAL PLANS | SHEET 394 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\021116_rm.dgn PLOT DATE : 12-AUG-2015 12:25 PLOT BY : MSCD1S PLOT NAME : 021116_rm PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42

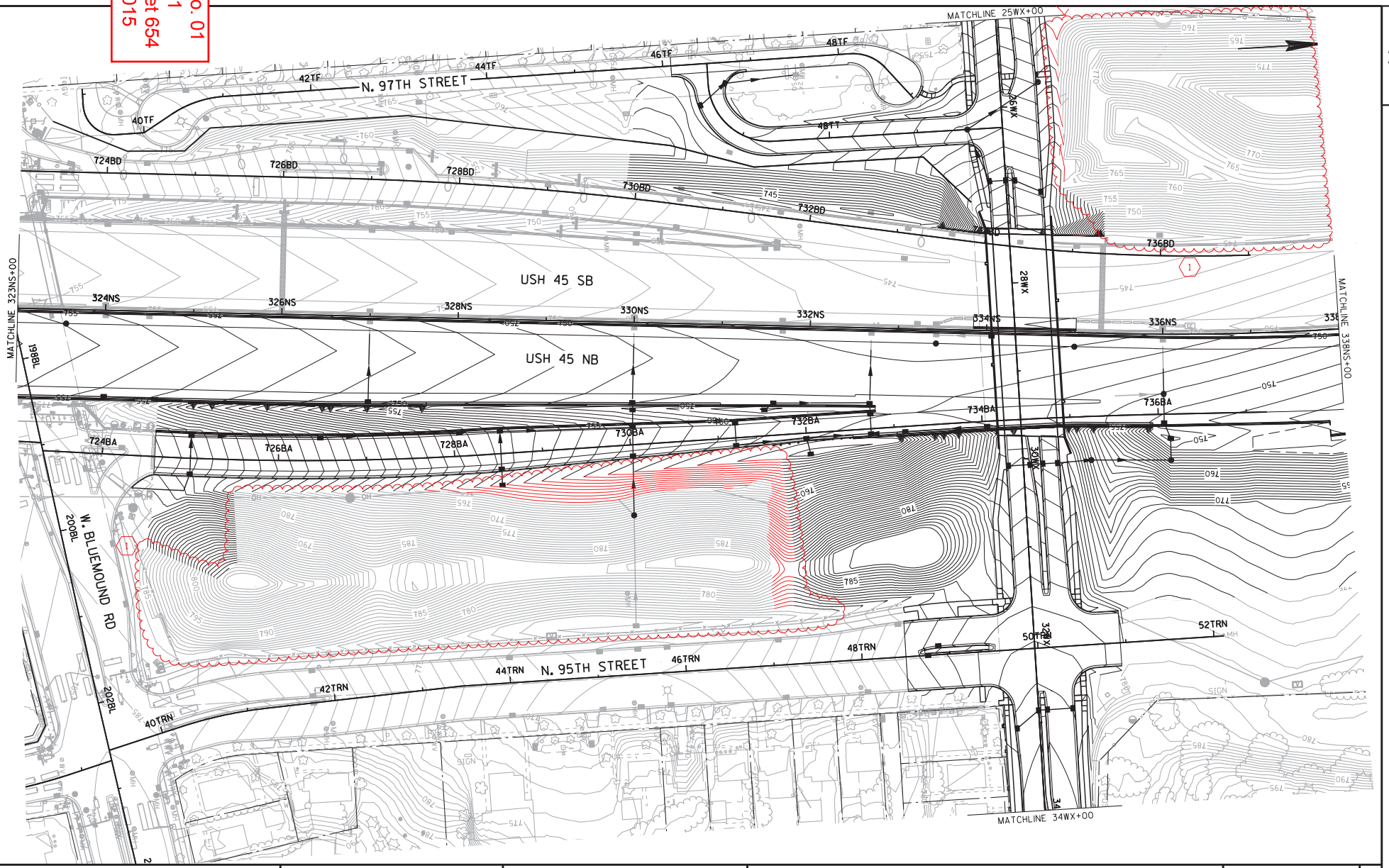



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | REMOVAL PLANS | SHEET 400 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\021122_rm.dgn PLOT DATE : 12-AUG-2015 17:49 PLOT BY : MSCDMY PLOT NAME : 021122_rm PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42

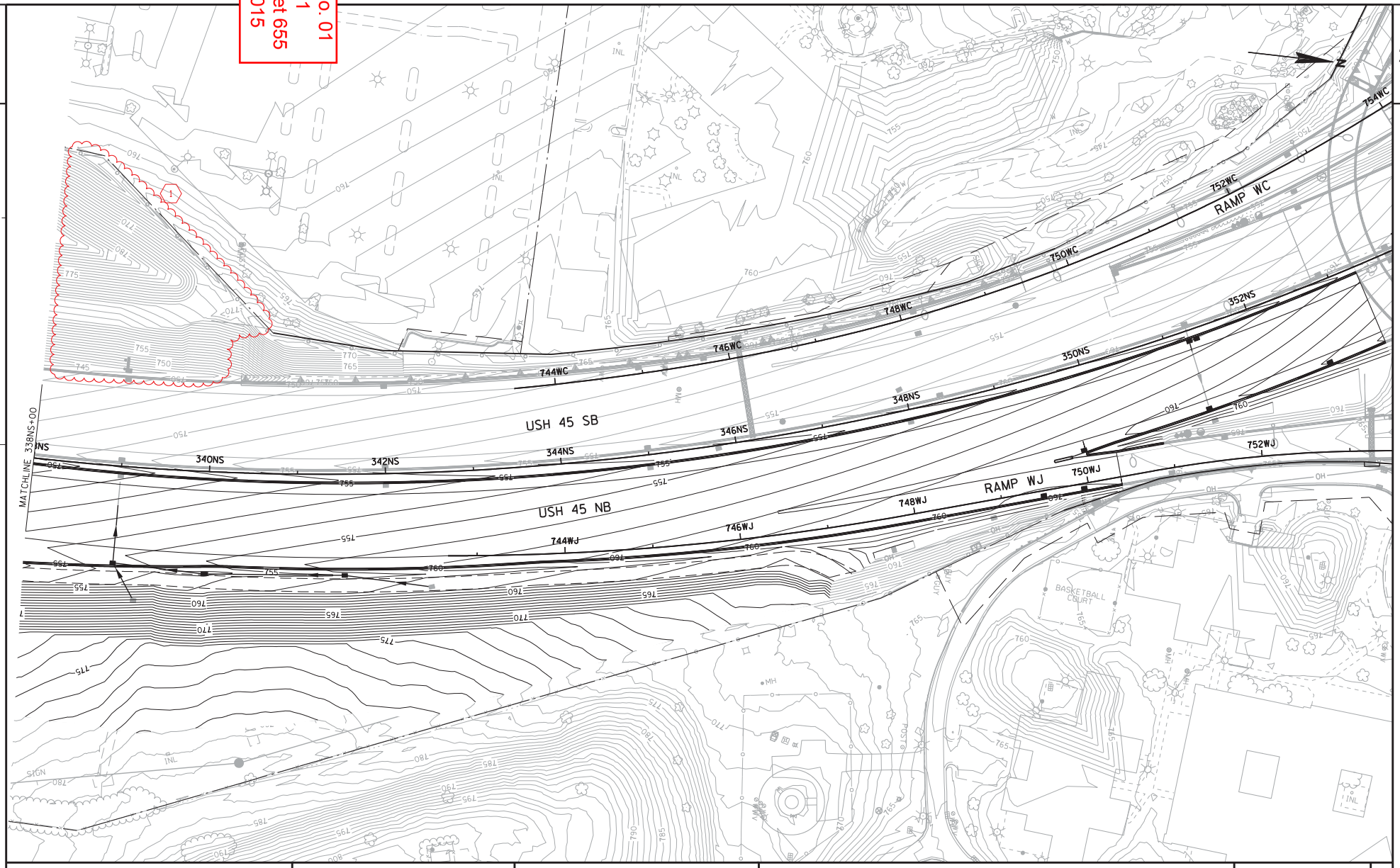
Addendum No. 01
ID 1060-33-81
Revised Sheet 654
August 17, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CONTOUR MAP | SHEET 654 | E |
|---|---|---|---|---|---|

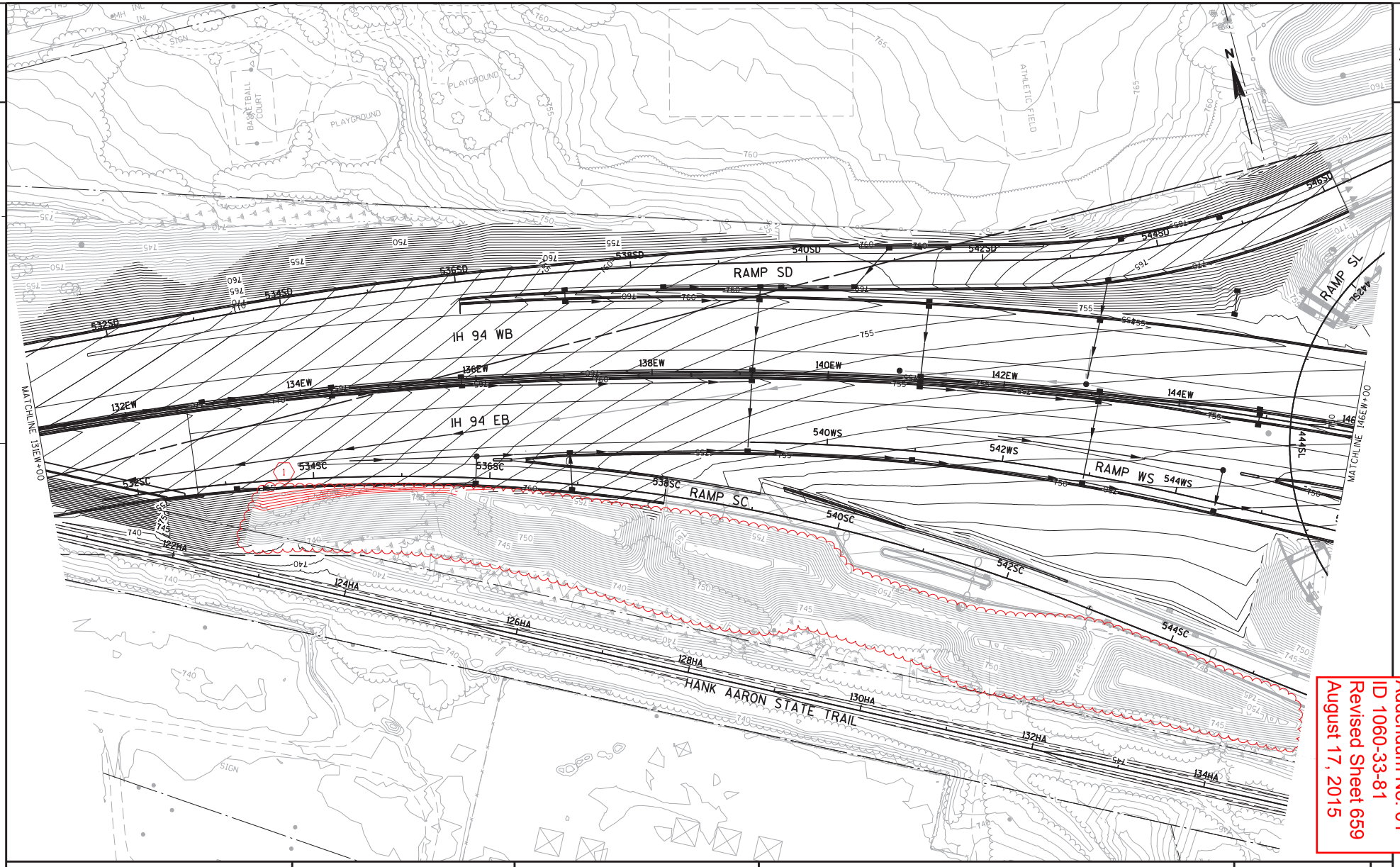
FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\021610_cm.dgn PLOT DATE : 13-AUG-2015 14:04 PLOT BY : MSCDMY PLOT NAME : 021610_cm PLOT SCALE : 100:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 655
August 17, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CONTOUR MAP | SHEET 655 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\021611_cm.dgn PLOT DATE : 13-AUG-2015 14:04 PLOT BY : MSCDMY PLOT NAME : 021611_cm PLOT SCALE : 100:1

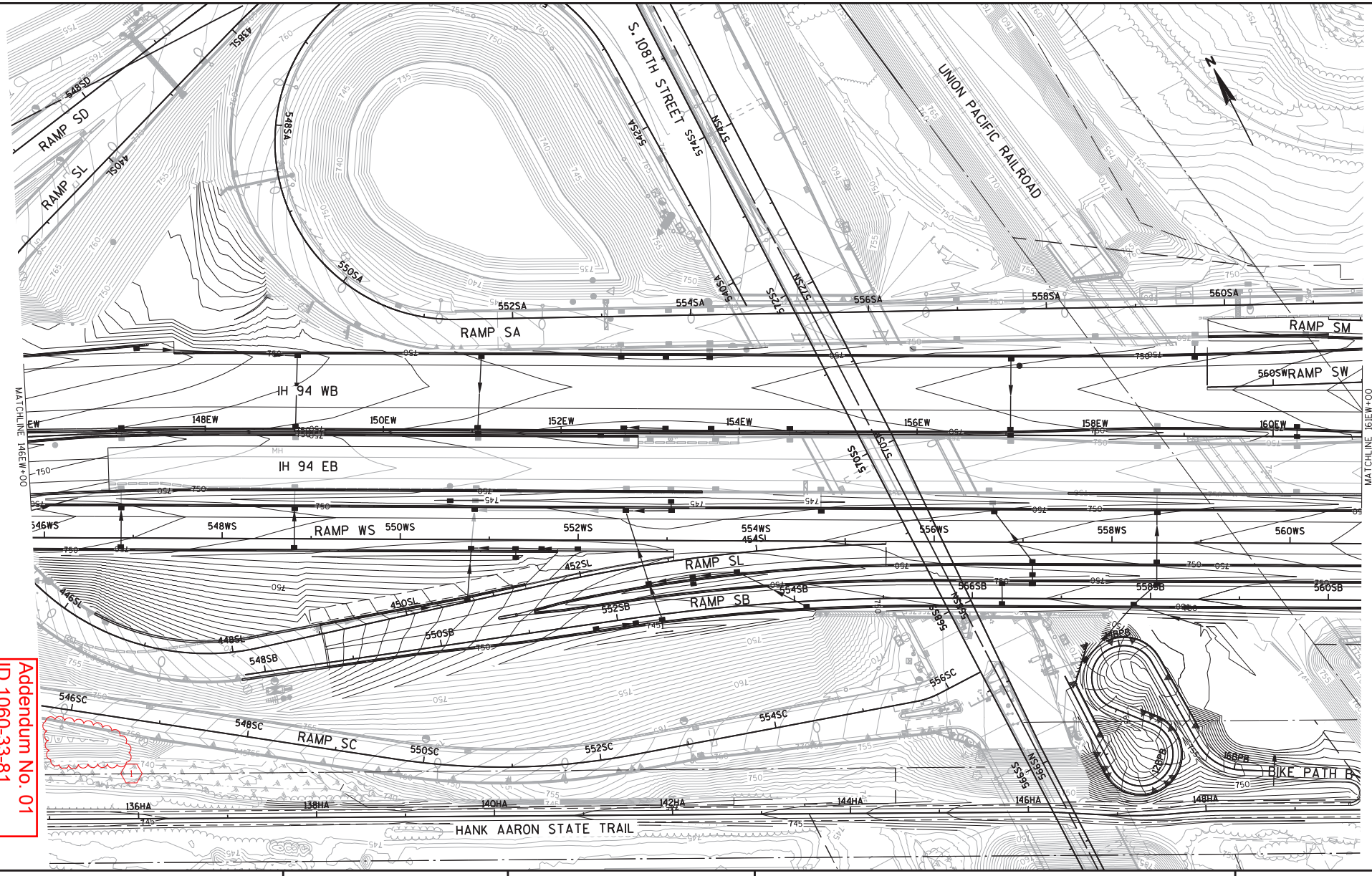



Addendum No. 01
ID 1060-33-81
Revised Sheet 659
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CONTOUR MAP | SHEET 659 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\021615_cm.dgn PLOT DATE : 13-AUG-2015 14:04 PLOT BY : MSCDMY PLOT NAME : 021615_cm PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42



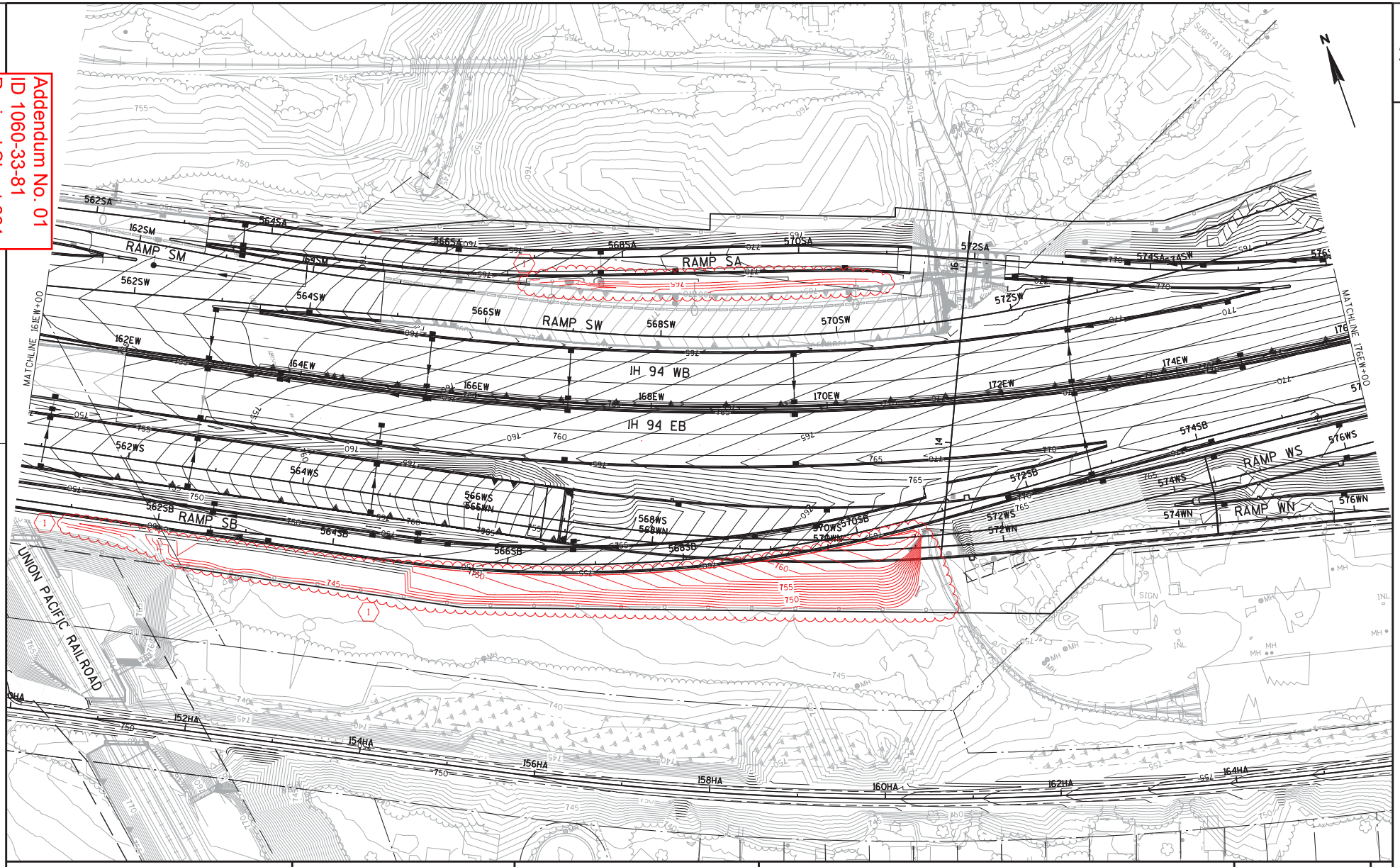

Addendum No. 01
ID 1060-33-81
Revised Sheet 660
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CONTOUR MAP | SHEET 660 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\021616_cm.dgn PLOT DATE : 13-AUG-2015 14:04 PLOT BY : MSCDMY PLOT NAME : 021616_cm PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42

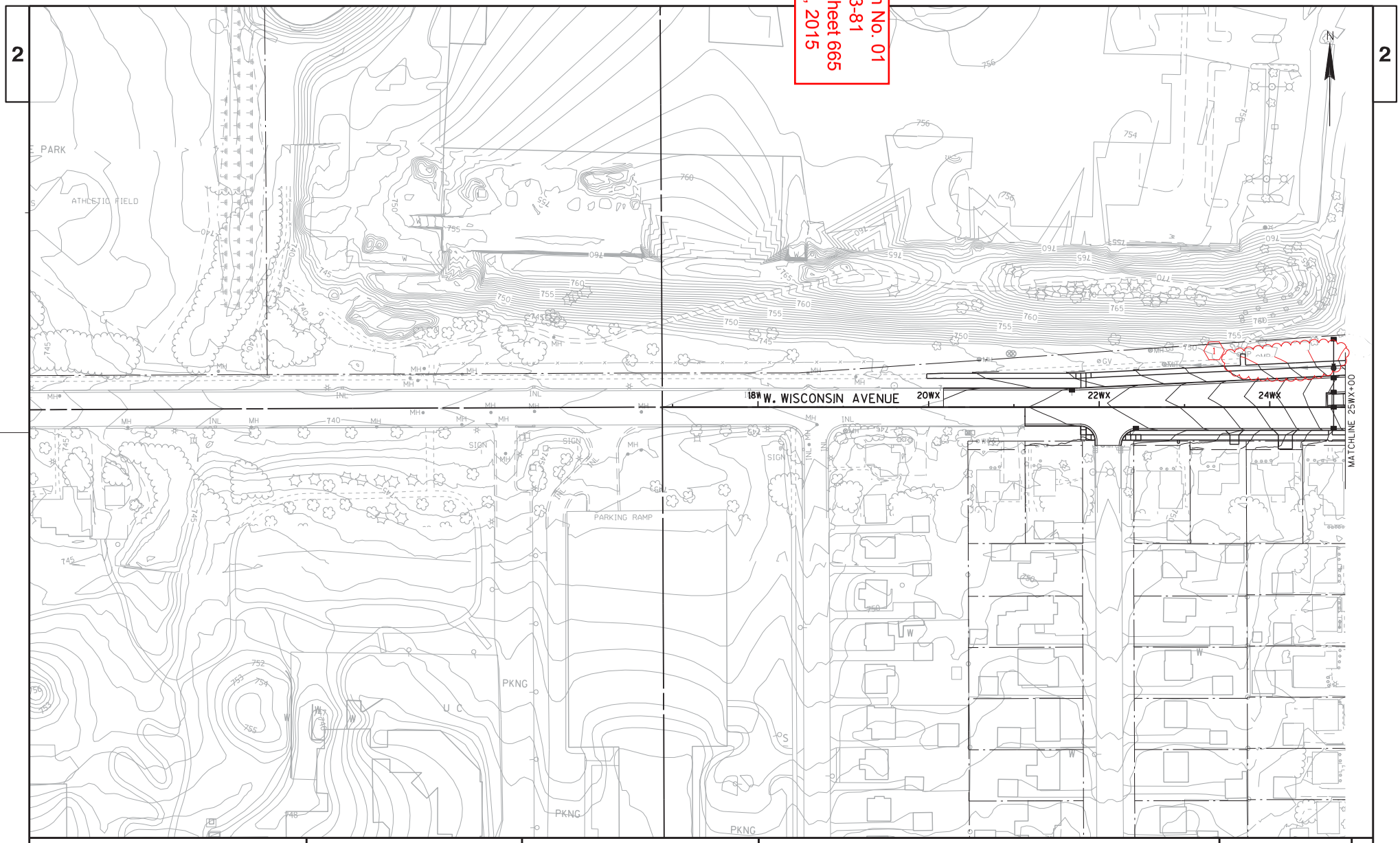
Addendum No. 01
ID 1060-33-81
Revised Sheet 661
August 17, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CONTOUR MAP | SHEET 661 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\021617_cm.dgn PLOT DATE : 12-AUG-2015 16:11 PLOT BY : mscgz1 PLOT NAME : 021617_cm PLOT SCALE : 100:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 665
August 17, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CONTOUR MAP | SHEET 665 | E |
|---|---|---|---|---|---|

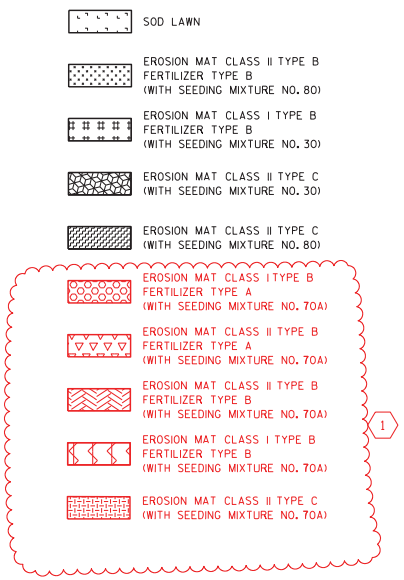
FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\021622_cm.dgn PLOT DATE : 13-AUG-2015 14:13 PLOT BY : MSCDMY PLOT NAME : 021622_cm PLOT SCALE : 100:1

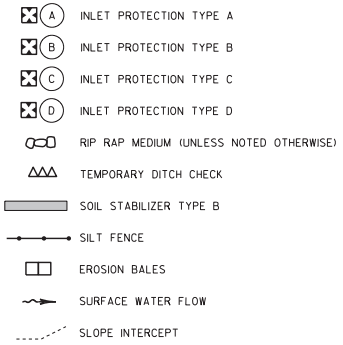
WISDOT/CADDS SHEET 42

2

2

LEGEND




NOTES

PLACE INLET PROTECTION TYPE A AT ALL NEW INLET LOCATIONS DURING GRADING STAGES.

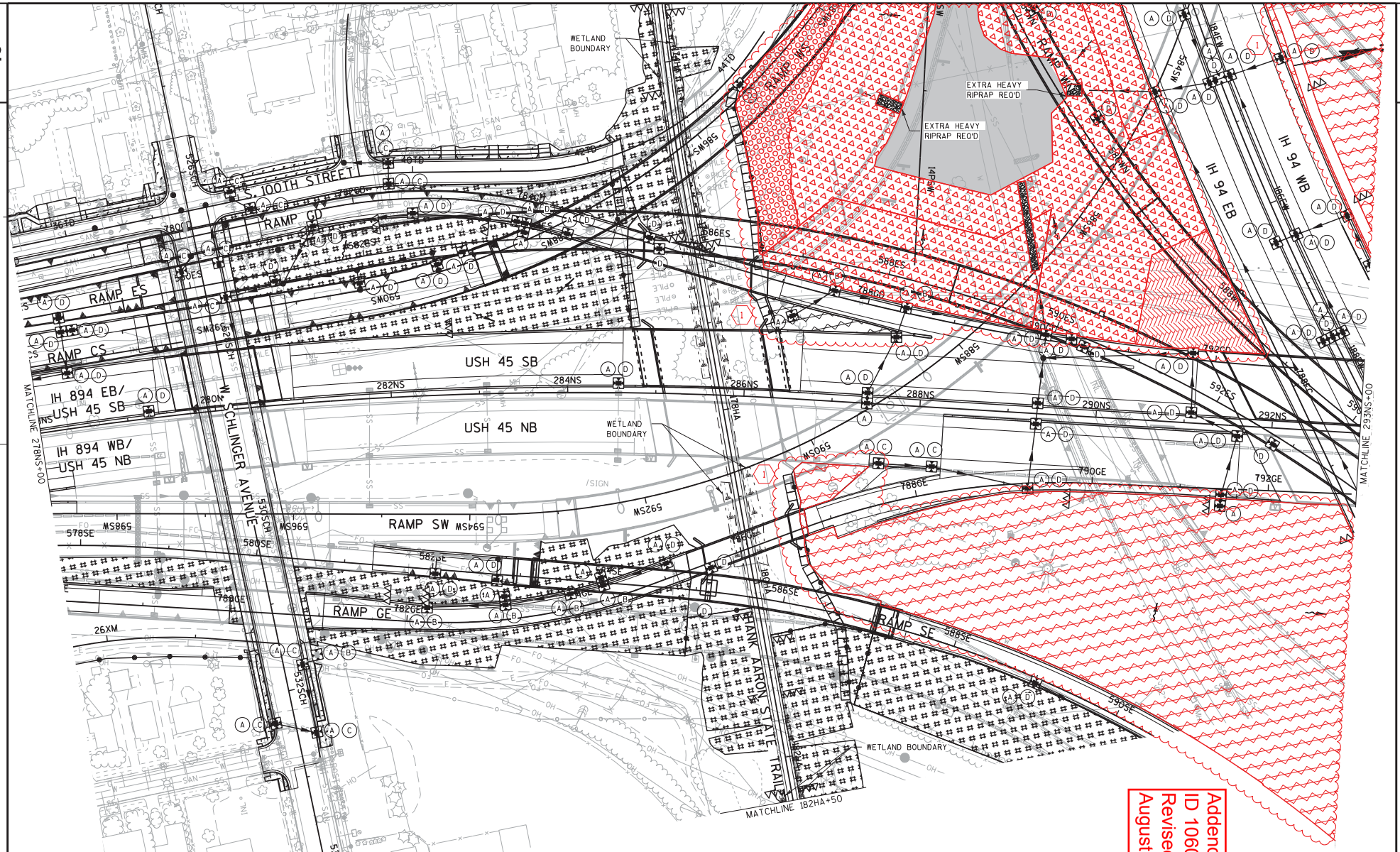
PLACE INLET PROTECTION TYPE B, C, OR D UNDER INLET COVERS LOCATED IN CURB AND GUTTER UNTIL COMPLETION OF THE PROJECT.

DO NOT STORE MATERIALS OR OPERATE EQUIPMENT WITHIN THE WETLAND LIMITS OUTSIDE THE SLOPE INTERCEPTS.

Addendum No. 01
ID 1060-33-81
Revised Sheet 685
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EROSION CONTROL | SHEET 685 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\022000_ec.dgn PLOT DATE : 12-AUG-2015 16:32 PLOT BY : mscgz1 PLOT NAME : 022000_ec PLOT SCALE : 100:1



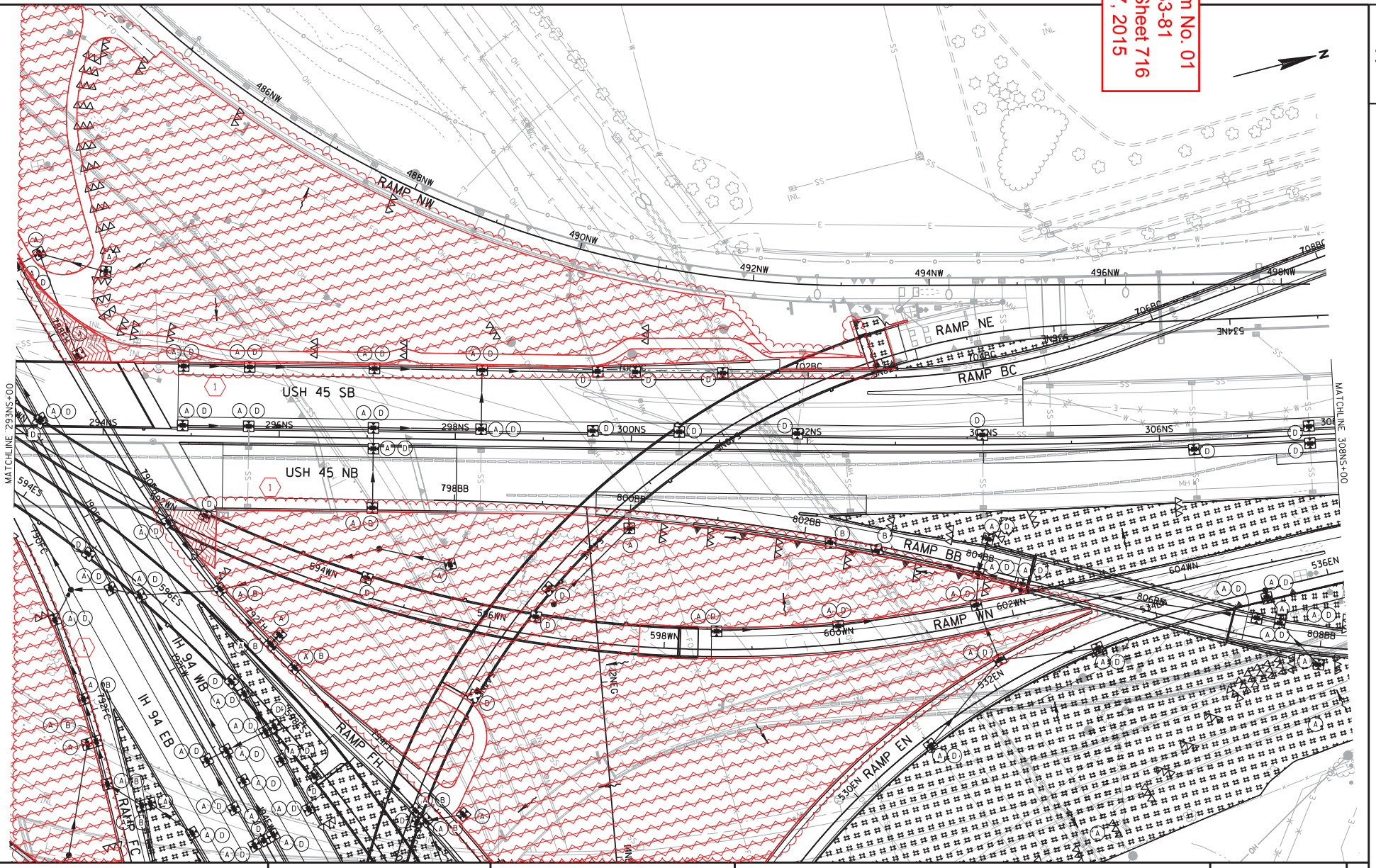

Addendum No. 01
ID 1060-33-81
Revised Sheet 715
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EROSION CONTROL | SHEET 715 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\022036_ec.dgn PLOT DATE : 12-AUG-2015 17:47 PLOT BY : mscgzl PLOT NAME : 022036_ec PLOT S

WISDOT/CADDS SHEET 42

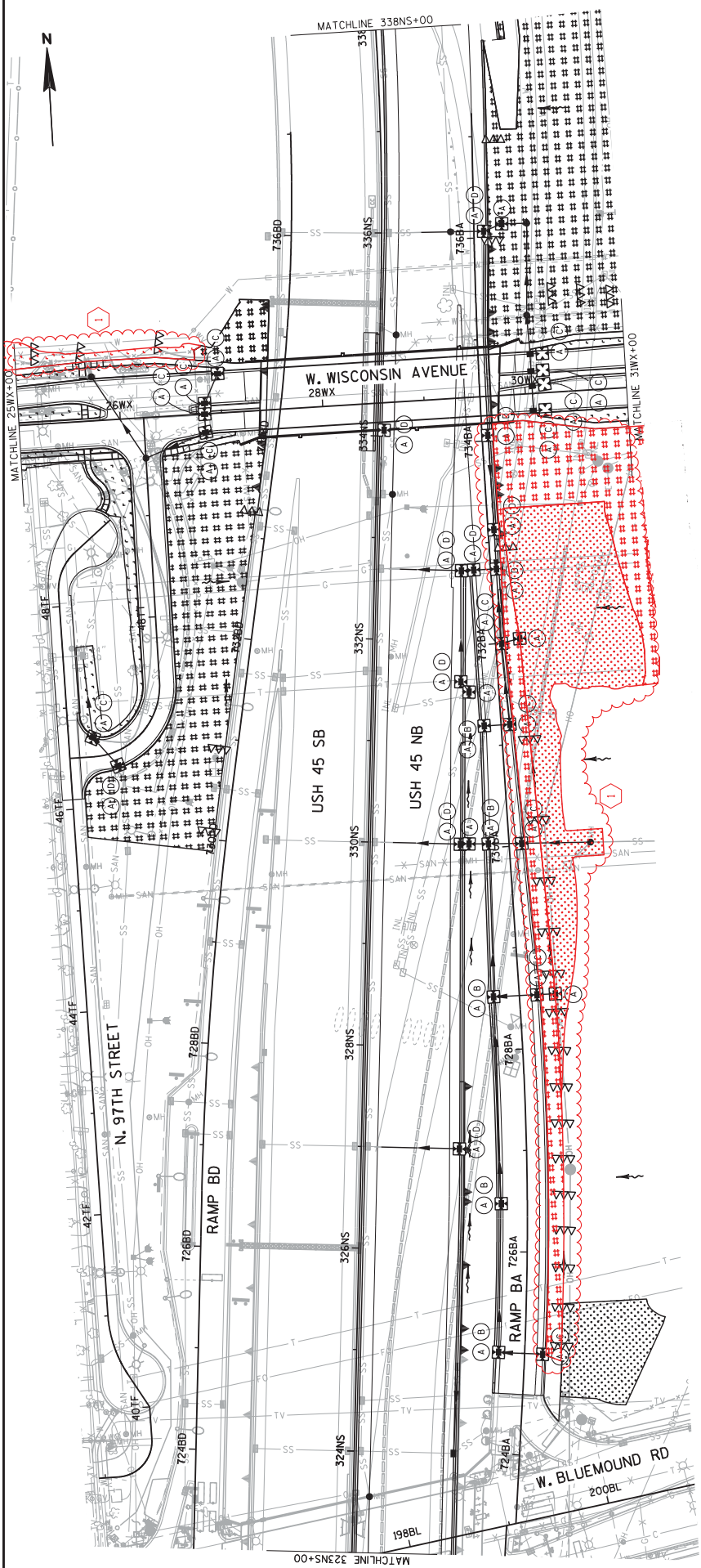
Addendum No. 01
ID 1060-33-81
Revised Sheet 716
August 17, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EROSION CONTROL | SHEET 716 | E |
|---|---|---|---|---|---|

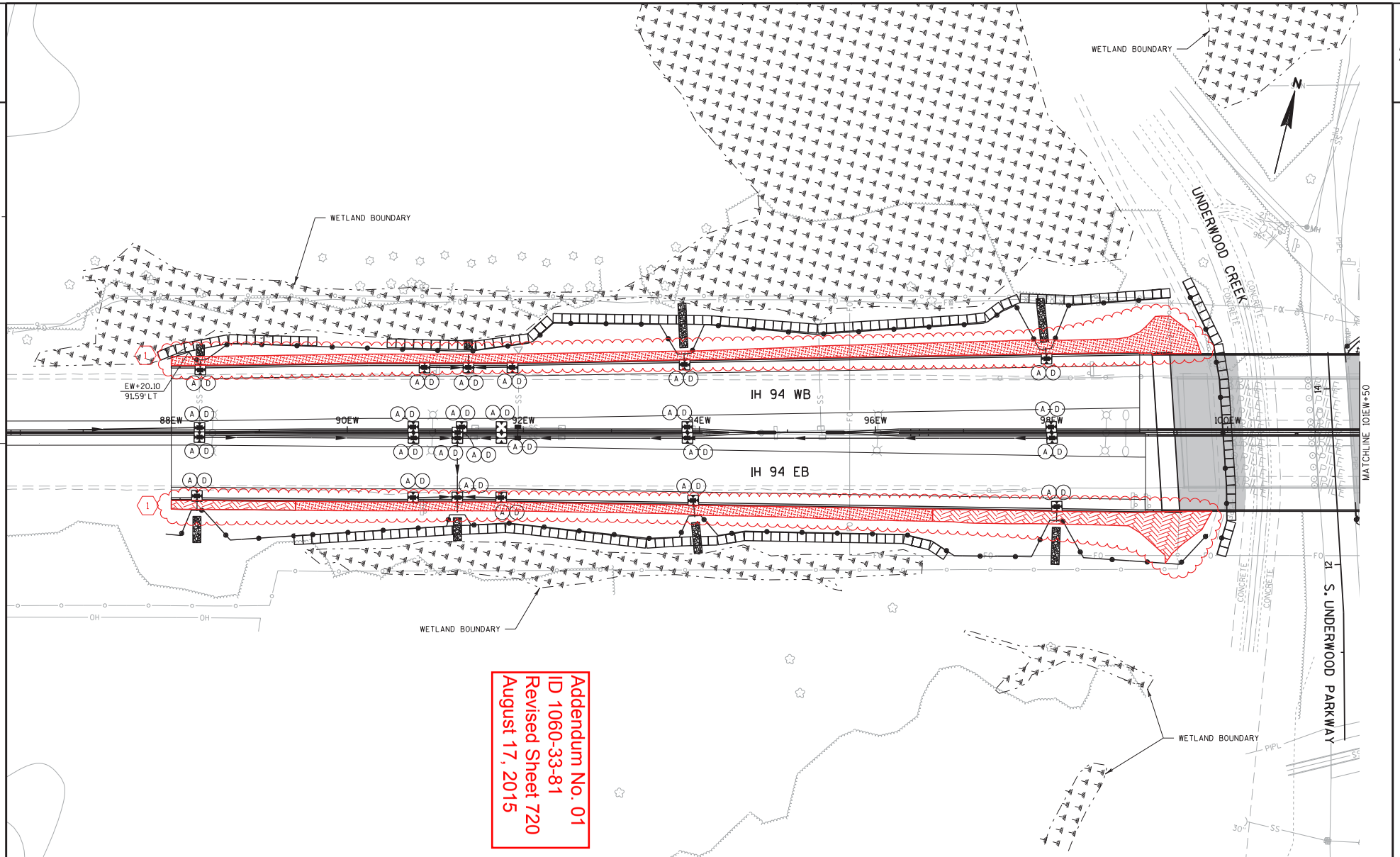

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\022037_ec.dgn PLOT DATE : 12-AUG-2015 17:49 PLOT BY : mscgzl PLOT NAME : 022037_ec PLOT SCALE : 100:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 718
August 17, 2015




PROJECT NO:1060-33-81 | HWY:IH 894/IH 94/USH 45 | COUNTY:MILWAUKEE | EROSION CONTROL | SHEET 718 | E

FILE NAME : W:\CaddFiles\10603381.ZZ\Roads\cds\022039_ec.dgn
PLOT DATE : 12-AUG-2015 18:00 PLOT BY : MSCDMY PLOT NAME : 022039_ec PLOT SCALE : 100:1
WISDOT/CADDS SHEET 42




Addendum No. 01
ID 1060-33-81
Revised Sheet 720
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EROSION CONTROL | SHEET 720 | E |
|---|---|---|---|---|---|

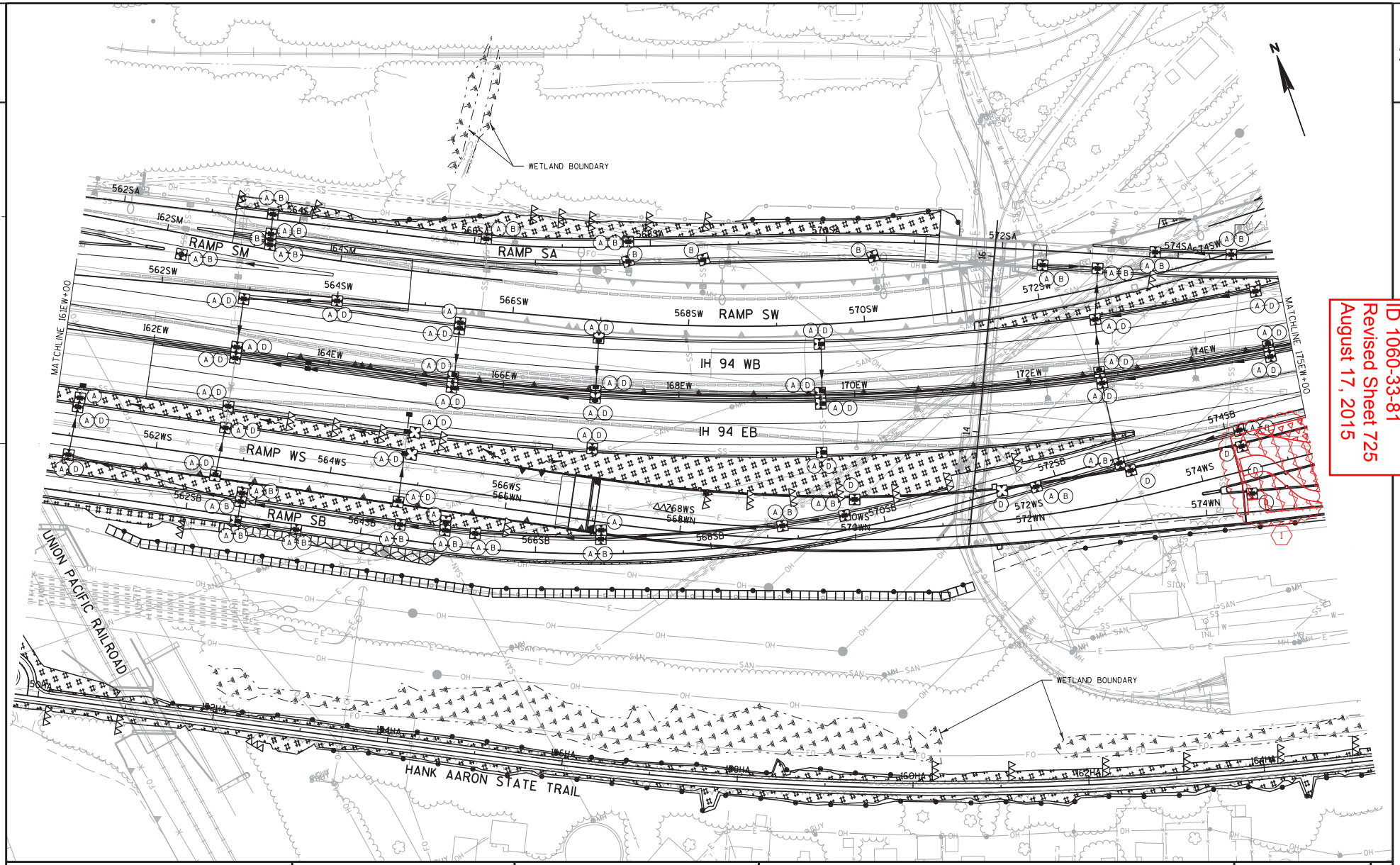
FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\022041_ec.dgn PLOT DATE : 12-AUG-2015 15:02 PLOT BY : mscgzl PLOT NAME : 022041_ec PLOT SCALE : 100:1




Addendum No. 01
ID 1060-33-81
Revised Sheet 722
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EROSION CONTROL | SHEET 722 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\022043_ec.dgn PLOT DATE : 12-AUG-2015 15:02 PLOT BY : mscgzl PLOT NAME : 022043_ec PLOT SCALE : 100:1



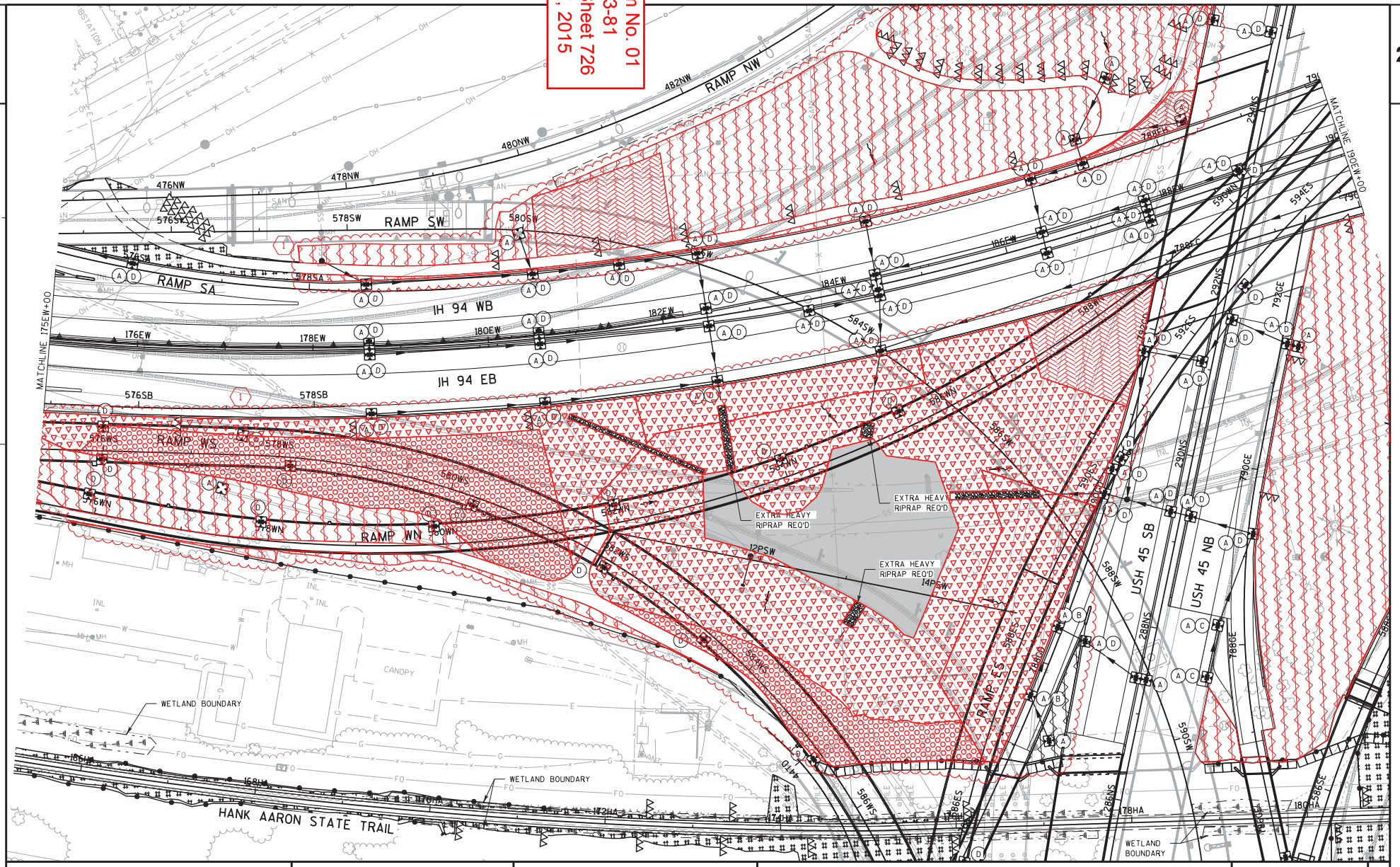

Addendum No. 01
ID 1060-33-81
Revised Sheet 725
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EROSION CONTROL | SHEET 725 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\022046_ec.dgn PLOT DATE : 12-AUG-2015 17:51 PLOT BY : mscgzl PLOT NAME : 022046_ec PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42

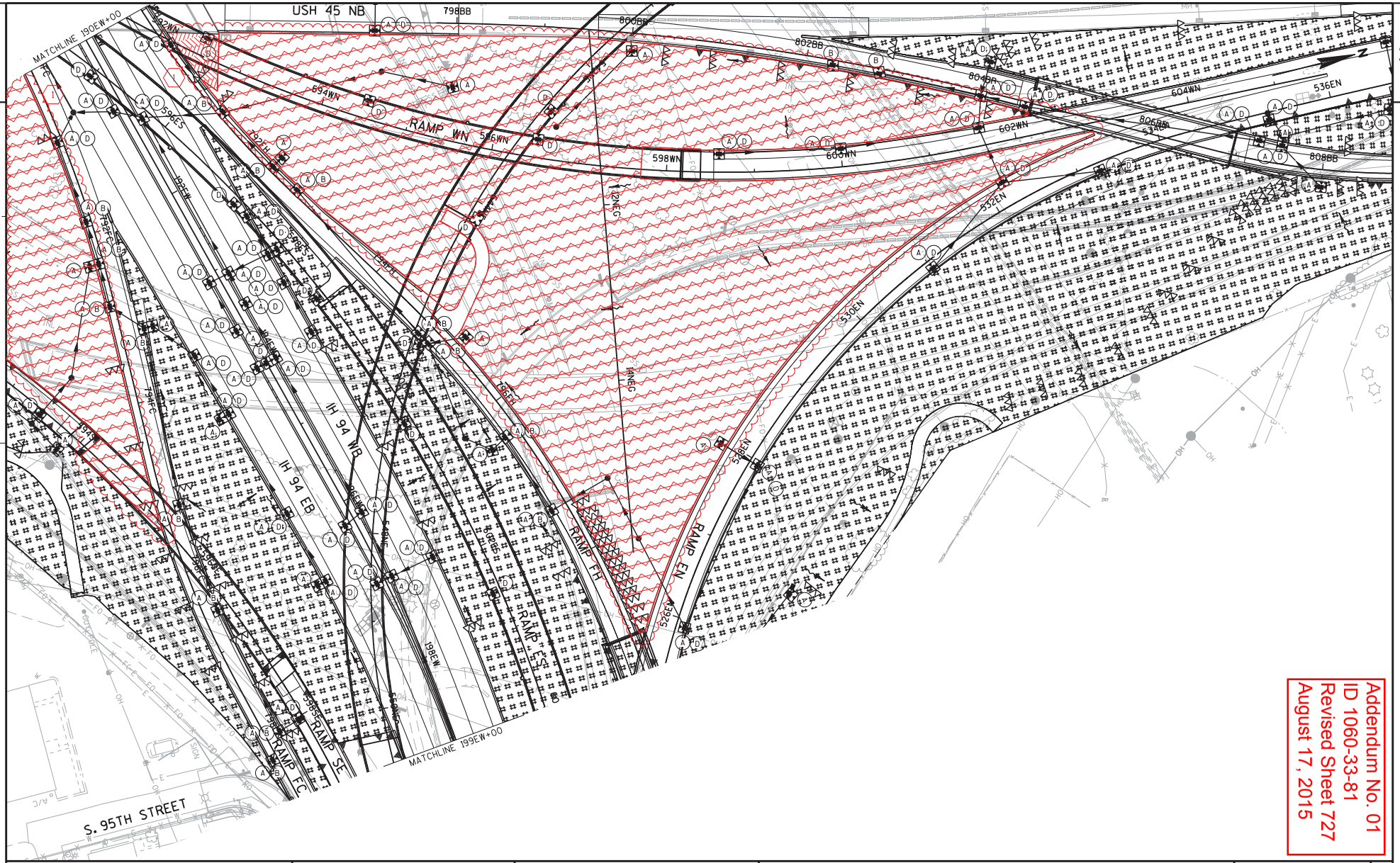
Addendum No. 01
ID 1060-33-81
Revised Sheet 726
August 17, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EROSION CONTROL | SHEET 726 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\022047_ec.dgn PLOT DATE : 12-AUG-2015 17:54 PLOT BY : mscgzl PLOT NAME : 022047_ec PLOT SCALE : 100:1

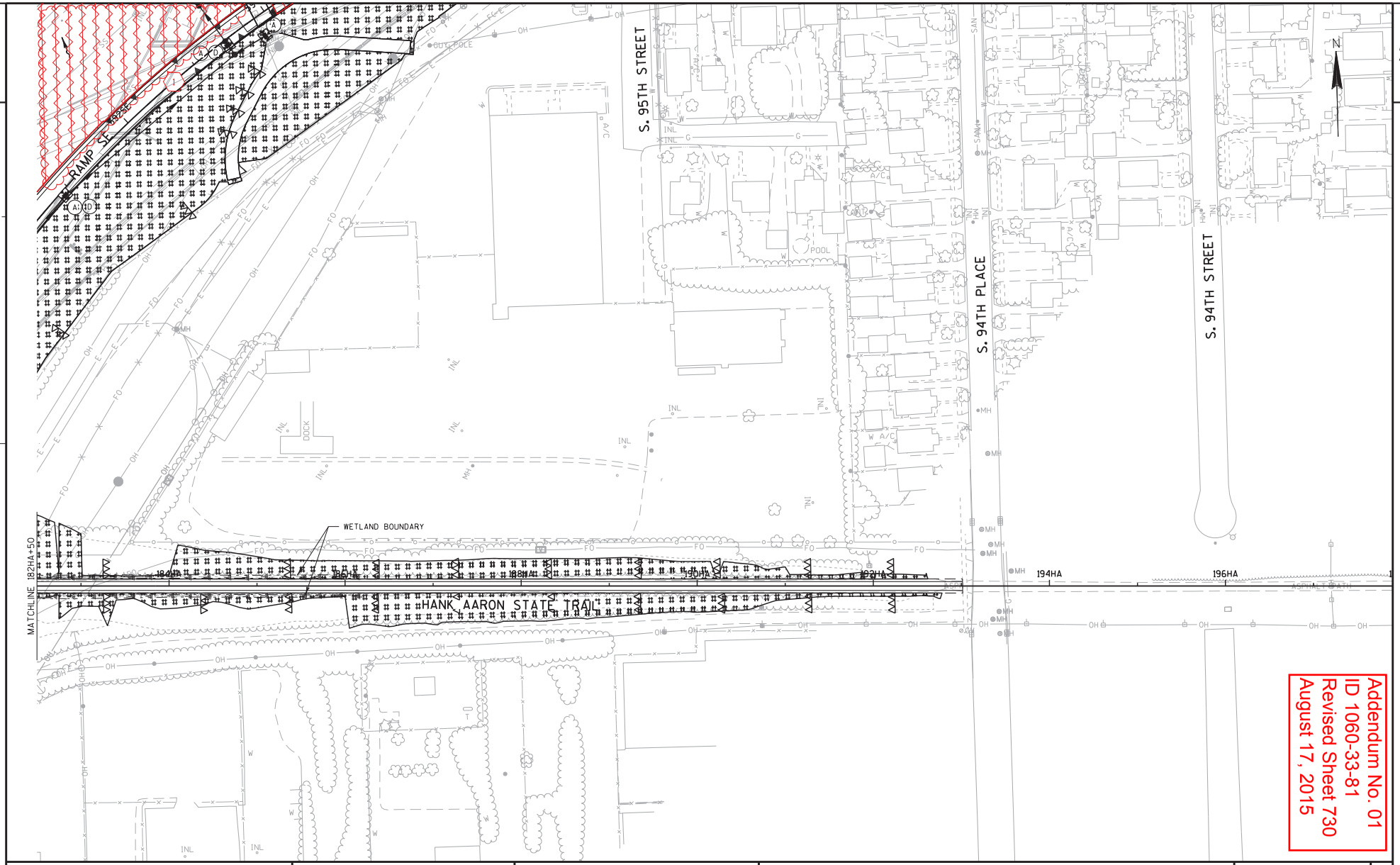
WISDOT/CADDS SHEET 42




Addendum No. 01
ID 1060-33-81
Revised Sheet 727
August 17, 2015

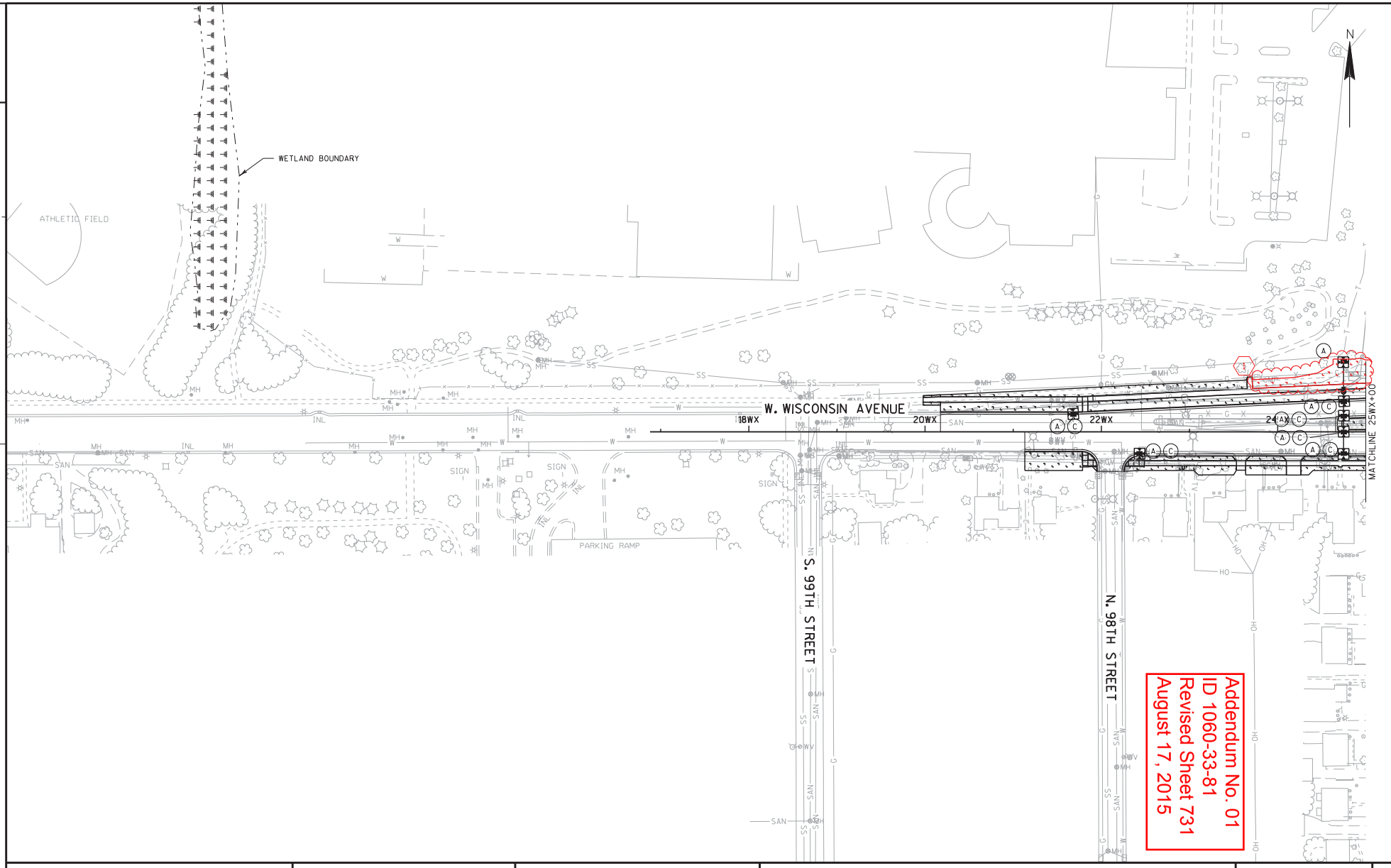
| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EROSION CONTROL | SHEET 727 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\022048_ec.dgn PLOT DATE : 12-AUG-2015 17:56 PLOT BY : mscgzl PLOT NAME : 022048_ec PLOT SCALE : 100:1



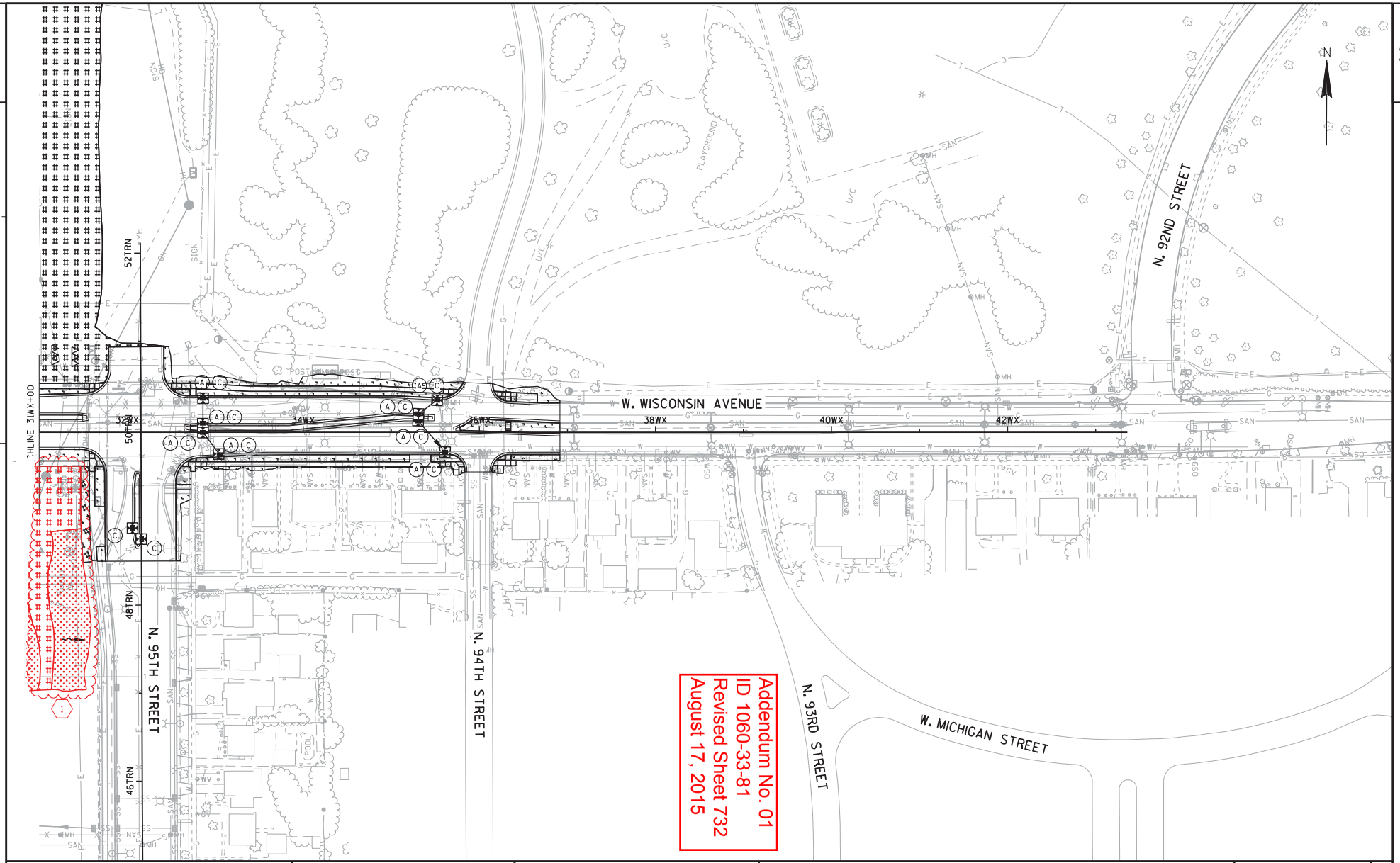

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EROSION CONTROL | SHEET 730 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\022051_ec.dgn PLOT DATE : 13-AUG-2015 12:05 PLOT BY : MSCD1S PLOT NAME : 022051_ec PLOT SCALE : 100:1




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EROSION CONTROL | SHEET 731 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\022052_ec.dgn PLOT DATE : 12-AUG-2015 18:03 PLOT BY : MSCDMY PLOT NAME : 022052_ec PLOT SCALE : 100:1




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EROSION CONTROL | SHEET 732 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\022053_ec.dgn PLOT DATE : 12-AUG-2015 18:06 PLOT BY : mscgzl PLOT NAME : 022053_ec PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42

## REMOVING OLD STRUCTURE

| CATEGORY | ROADWAY | STATION | OFFSET | 203.0200.0021 REMOVING OLD STRUCTURE (STA 236NS+00) LS | 203.0200.0022 REMOVING OLD STRUCTURE (STA 252NS+65) LS | 203.0200.0023 REMOVING OLD STRUCTURE (STA 253NS+50) LS | 203.0200.0025 REMOVING OLD STRUCTURE (STA 155EW+25) LS | 203.0200.0026 REMOVING OLD STRUCTURE (STA 159EW+00) LS | 203.0200.0027 REMOVING OLD STRUCTURE (STA 556NE+00) LS | 203.0200.0028 REMOVING OLD STRUCTURE (STA 734BA+50) LS | 203.0200.0029 REMOVING OLD STRUCTURE (STA 345NS+00) LS | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **MAINLINE** | | | | | | | | | | | |
| 1000 | IH 894/ USH 45 NS | | | | | | | | | | | |
| | | 236NS+00 | LT | 1 | -- | -- | -- | -- | -- | -- | -- | REMOVE REMAINING FOUNDATIONS OF S-40-44 |
| | | 252NS+65 | LT | -- | 1 | -- | -- | -- | -- | -- | -- | REMOVE REMAINING FOUNDATION OF S-40-156 |
| | | 253NS+50 | LT | -- | -- | 1 | -- | -- | -- | -- | -- | REMOVE REMAINING PIERS OF B-40-128 |
| | | 345NS+00 | LT | -- | -- | -- | -- | -- | -- | -- | 1 | REMOVE SIGN STRUCTURE FOUNDATION |
| | IH 94 WB | | | | | | | | | | | |
| | | 155EW+50 | LT/RT | -- | -- | -- | 1 | -- | -- | -- | -- | REMOVE REMAINING FOUNDATION OF B-40-109 AND B-40-110 |
| | | 159EW+00 | LT | -- | -- | -- | -- | 1 | -- | -- | -- | REMOVE REMAINING PIERS AND FOUNDATION OF B-40-106 |
| | **RAMPS** | | | | | | | | | | | |
| | RAMP NE | | | | | | | | | | | |
| | | 556NE+00 | | -- | -- | -- | -- | -- | 1 | -- | -- | REMOVE REMAINING RETAINING WALL FOUNDATION |
| | RAMP BA | | | | | | | | | | | |
| | | 734BA+50 | | -- | -- | -- | -- | -- | -- | 1 | -- | REMOVE REMAINING CENTER PIER FOUNDATION |
| | **LOCAL ROADS** | | | | | | 1 | | | | | |
| | HANK AARON STATE TRAIL | | | | | | | | | | | |
| | | 180HA+50 | LT | -- | -- | -- | -- | -- | -- | -- | -- | BOX CULVERT AT HANK AARON STATE TRAIL |
| | TOTAL | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |

## REMOVING CONCRETE SURFACE PARTIAL DEPTH

| CATEGORY | STAGE | ROADWAY | STATION | TO | STATION | OFFSET | 204.0109.S REMOVING CONCRETE SURFACE PARTIAL DEPTH SF |
|---|---|---|---|---|---|---|---|
| | | **LOCAL ROADS** | | | | | |
| 1000 | 3 | N. 97TH STREET | | | | | |
| | | | 46TF+09 | - | 49TF+05 | RT/LT | 7,771 |
| | | TOTAL | | | | | 7,771 |

Addendum No. 01
ID 1060-33-81
Revised Sheet 1621
August 17, 2015

## REMOVING PAVEMENT

| CATEGORY | STAGE | ROADWAY | STATION | TO | STATION | OFFSET | 204.0100 REMOVING PAVEMENT SY |
|---|---|---|---|---|---|---|---|
| | | **MAINLINE** | | | | | |
| 1000 | 1 | IH 894/ USH 45 SB | | | | | |
| | | | 286NS+20 | - | 288NS+58 | LT | 1,231 |
| | | | 289NS+79 | - | 295NS+46 | LT | 3,111 |
| | | | 296NS+82 | - | 300NS+31 | LT | 1,433 |
| | | IH 94 EB | | | | | |
| | | | 113EW+10 | - | 125EW+66 | LT/RT | 1,537 |
| | | IH 94 WB | | | | | |
| | | | 113EW+02 | - | 125EW+73 | LT | 2,891 |
| | | **RAMPS** | | | | | |
| | | RAMP WS | | | | | |
| | | | 580WS+24 | - | 585WS+78 | LT/RT | 1,703 |
| | | RAMP ES | | | | | |
| | | | 592ES+30 | | 593SE+52 | LT | 394 |
| | | SUBTOTAL | | | | | 12,300 |
| | | **MAINLINE** | | | | | |
| 1000 | 2 | IH 894/ USH 45 NB | | | | | |
| | | | 203NS+29 | - | 219NS+00 | RT | 2,603 |
| | | | 227NS+00 | - | 228NS+66 | RT | 210 |

## REMOVING PAVEMENT

| CATEGORY | STAGE | ROADWAY | STATION | TO | STATION | OFFSET | 204.0100 REMOVING PAVEMENT SY |
|---|---|---|---|---|---|---|---|
| | | | 231NS+03 | - | 236NS+61 | RT | 371 |
| | | IH 894/ USH 45 SB | | | | | |
| | | | 268NS+00 | - | 279NS+39 | LT/RT | 1,636 |
| | | | 280NS+80 | - | 284NS+77 | LT | 733 |
| | | | 327NS+00 | - | 333NS+60 | RT | 1,437 |
| | | | 335NS+31 | - | 349NS+45 | RT | 7,618 |
| | | IH 94 EB | | | | | |
| | | | 88EW+00 | - | 99EW+49 | RT | 2,184 |
| | | | 101EW+72 | - | 111EW+43 | RT | 1,033 |
| | | | 113EW+02 | - | 122EW+32 | RT | 1,222 |
| | | **RAMPS** | | | | | |
| | | RAMP LA | | | | | |
| | | | 703LA+32 | - | 710LA+03 | LT/RT | 2,184 |
| | | RAMP GA | | | | | |
| | | | 756GA+45 | - | 762GA+09 | LT/RT | 1,611 |
| | | RAMP GB | | | | | |
| | | | 740GB+67 | - | 743GB+31 | LT | 397 |

(CONTINUED ON NEXT SHEET)



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\030201_mq_pav.ppt PLOT DATE : 8/10/2015 1:13:05 PM PLOT BY : MSCCEJ PLOT NAME : 030201_mq_pav3 PLOT SCALE : 1:1

## EARTH WORK SUMMARY

| Division | From/To Station | Location | 205.0100 Excavation Common (CY) (1) | SPV. 0035.0100 EBS Excavation (CY) (3) | Salvaged/ Unusable Pavement Material (CY) | Available Material (4) | SPV. 0035.0101 EBS Backfill (CY) (3) | Unexpanded Fill (5) | Expanded Fill (6) | Mass Ordinate +/- (7) | Waste (8) | Borrow | Comment: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut (2) | | | | Factor 1.00 | | Factor 1.20 | | | Item 208.0100 | |
| 1 | 11+29 TO 23+90 | TEMPORARY RAMP EWG | 1,795 | 25 | 1,005 | 790 | 25 | 0 | 0 | 790 | 790 | 0 | |
| Division 1 Subtotal Stage 1 | | | 1,795 | 25 | 1,005 | 790 | 25 | 0 | 0 | 790 | 790 | 0 | |
| 2 | | MAINLINE | | | | | | | | | | | |
| | 190+31 TO 265+07 | USH 45 NB | 34,602 | 484 | 1,063 | 33,539 | 484 | 33,638 | 40,366 | -6,827 | -6,827 | 0 | |
| | 308+00 TO 353+31 | USH 45 NB | 46,393 | 650 | 3,018 | 43,375 | 650 | 7 | 8 | 43,367 | 43,367 | 0 | |
| | 333+42 TO 335+31 | USH 45 SB | 199 | 3 | 11 | 188 | 3 | 858 | 1,029 | -841 | -841 | 0 | |
| | 88+00 TO 143+00 | IH 94 EB | 2,114 | 30 | 83 | 2,031 | 30 | 59,262 | 71,115 | -69,084 | -69,084 | 0 | |
| | 180+00 TO 192+00 | IH 94 EB | 22,857 | 320 | 520 | 22,337 | 320 | 3,417 | 4,100 | 18,237 | 18,237 | 0 | |
| | 185+00 TO 193+00 | IH 94 WB | 20,605 | 288 | 218 | 20,387 | 288 | 9,535 | 11,442 | 8,945 | 8,945 | 0 | |
| | | RAMPS | | | | | | | | | | | |
| | 540+89 TO 591+47 | WS | 1,471 | 21 | 55 | 1,416 | 21 | 15,681 | 15,681 | -14,264 | -14,264 | 0 | |
| | 571+00 TO 575+00 | CS | 0 | 0 | 0 | 0 | 0 | 733 | 879 | -879 | -879 | 0 | |
| | 598+16 TO 605+61 | WN | 1,740 | 24 | 0 | 1,740 | 24 | 11,741 | 14,089 | -12,349 | -12,349 | 0 | |
| | 536+02 TO 538+65 | EN | 4,305 | 60 | 0 | 4,305 | 60 | 0 | 0 | 4,305 | 4,305 | 0 | |
| | 703+32 TO 717+90 | LA | 9,648 | 135 | 302 | 9,346 | 135 | 5,331 | 6,397 | 2,949 | 2,949 | 0 | |
| | 755+64 TO 762+38 | GA | 2,829 | 40 | 254 | 2,575 | 40 | 251 | 301 | 2,274 | 2,274 | 0 | |
| | 740+36 TO 752+03 | GB | 13,453 | 188 | 0 | 13,453 | 188 | 315 | 379 | 13,074 | 13,074 | 0 | |
| | 761+86 TO 769+45 | GE | 1,774 | 25 | 0 | 1,774 | 25 | 76 | 91 | 1,683 | 1,683 | 0 | |
| | 804+60 TO 806+95 | RAMP BB TUNNEL | 0 | 0 | 0 | 0 | 0 | 5,085 | 6,103 | -6,103 | -6,103 | 0 | |
| | 548+70 TO 566+13 | SB | 470 | 7 | 0 | 470 | 7 | 2,699 | 3,238 | -2,769 | -2,769 | 0 | |
| | 533+83 TO 540+74 | SC | 127 | 2 | 0 | 127 | 2 | 2,251 | 2,701 | -2,575 | -2,575 | 0 | |
| | 449+02 TO 455+46 | SL | 131 | 2 | 0 | 131 | 2 | 811 | 973 | -842 | -842 | 0 | |
| | 789+56 TO 791+45 | FH | 2,641 | 37 | 0 | 2,641 | 37 | 13 | 16 | 2,625 | 2,625 | 0 | |
| | | LOCAL | | | | | | | | | | | |
| | 21+13 TO 26+23 | W. WISCONSIN AVENUE | 702 | 10 | 561 | 142 | 10 | 12 | 14 | 128 | 128 | 0 | |
| | 46+13 TO 49+71 | N. 97TH STREET (TT) | 179 | 3 | 46 | 132 | 3 | 162 | 194 | -62 | -62 | 0 | |
| | 17+26 TO 21+63 | W. FAIRVIEW AVE | 372 | 5 | 0 | 372 | 5 | 18 | 22 | 350 | 350 | 0 | |
| | 9+80 TO 16+93 | XM | 1,450 | 20 | 0 | 1,450 | 20 | 327 | 393 | 1,057 | 1,057 | 0 | |
| | 10+08 TO 13+19 | BIKE PATH A | 217 | 3 | 0 | 217 | 3 | 75 | 90 | 128 | 128 | 0 | |
| | 10+15 TO 17+79 | BIKE PATH B | 554 | 8 | 0 | 554 | 8 | 9,540 | 11,449 | -10,895 | -10,895 | 0 | |
| | | TEMPORARY | | | | | | | | | | | |
| | 1+55 TO 23+15 | RAMP NSD | 8,465 | 119 | 0 | 8,465 | 119 | 3,517 | 4,220 | 4,245 | 4,245 | 0 | |
| | 315+32 TO 328+67 | RAMP NSJ | 223 | 3 | 0 | 223 | 3 | 104 | 125 | 98 | 98 | 0 | |
| | 11+11 TO 16+41 | RAMP EWQ | 408 | 6 | 154 | 254 | 6 | 180 | 216 | 38 | 38 | 0 | |
| | 10+84 TO 15+98 | RAMP EWR | 98 | 1 | 0 | 98 | 1 | 225 | 270 | -172 | -172 | 0 | |

1

Addendum No. 01
ID 1060-33-81
Revised Sheet 1661
August 17, 2015

(CONTINUED ON NEXT SHEET)

EARTH WORK SUMMARY (CONTINUED)

| Division | From/To Station | | | Location | 205.0100 Excavation Common (CY) (1) | SPV. 0035.0100 EBS Excavation (CY) (3) | Salvaged/ Unusable Pavement Material (CY) | Available Material (4) | SPV. 0035.0101 EBS Backfill (CY) (3) | Unexpanded Fill (5) | Expanded Fill (6) | Mass Ordinate +/- (7) | Waste (8) | Borrow | Comment: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cut (2) | | | | Factor 1.00 | | Factor 1.20 | | | Item 208.0100 | |
| | 10+89 | TO | 13+36 | RAMP SWC | 50 | 1 | 0 | 50 | 1 | 172 | 206 | -156 | -156 | 0 | |
| | 11+04 | TO | 14+54 | RAMP SLC | 44 | 1 | 0 | 44 | 1 | 370 | 444 | -399 | -399 | 0 | |
| 2 | | | | GRADING | | | | | | | | | | | |
| | 730+00 | TO | 733+36 | RAMP BD GRADING | 80 | 1 | 0 | 80 | 1 | 418 | 502 | -421 | -421 | 0 | |
| | 10+00 | TO | 11+77 | MINOR RETAINING WALL R-2 | 0 | 0 | 0 | 0 | 0 | 86 | 103 | -103 | -103 | 0 | |
| Division 2 Subtotal Stage 2 | | | | | 178,200 | 2,495 | 6,284 | 171,916 | 2,495 | 166,910 | 197,156 | -25,240 | -25,240 | 0 | |
| 3 | | | | MAINLINE | | | | | | | | | | | |
| | 206+00 | TO | 278+30 | USH 45 NB | 22,545 | 316 | 3,973 | 18,572 | 316 | 14,230 | 17,076 | 1,496 | 1,496 | 0 | |
| | 312+00 | TO | 320+50 | USH 45 NB | 8,358 | 117 | 561 | 7,797 | 117 | 0 | 0 | 7,797 | 7,797 | 0 | |
| | 320+50 | TO | 353+31 | USH 45 NB | 8,409 | 118 | 575 | 7,834 | 118 | 0 | 0 | 7,834 | 7,834 | 0 | |
| | 319+80 | TO | 322+00 | USH 45 SB | 424 | 6 | 113 | 311 | 6 | 0 | 0 | 311 | 311 | 0 | |
| | 88+00 | TO | 147+00 | IH 94 EB | 3,133 | 44 | 30 | 3,103 | 44 | 37,440 | 44,928 | -41,826 | -41,826 | 0 | |
| | 196+19 | TO | 208+00 | IH 94 EB | 68,705 | 962 | 353 | 68,352 | 962 | 0 | 0 | 68,352 | 68,352 | 0 | |
| | 129+84 | TO | 145+00 | IH 94 WB | 571 | 8 | 0 | 571 | 8 | 1,950 | 2,340 | -1,769 | -1,769 | 0 | |
| | 198+98 | TO | 209+83 | IH 94 WB | 18,704 | 262 | 110 | 18,594 | 262 | 156 | 187 | 18,407 | 18,407 | 0 | 1 |
| | | | | RAMPS | | | | | | | | | | | |
| | 598+46 | TO | 605+19 | SW | 1,028 | 14 | 0 | 1,028 | 14 | 434 | 521 | 507 | 507 | 0 | |
| | 549+30 | TO | 552+30 | WS | 1,233 | 17 | 0 | 1,233 | 17 | 1,270 | 1,524 | -291 | -291 | 0 | |
| | 537+60 | TO | 561+55 | NE | 2,904 | 41 | 35 | 2,869 | 41 | 6,895 | 8,274 | -5,404 | -5,404 | 0 | |
| | 538+65 | TO | 542+66 | EN | 3,431 | 48 | 10 | 3,420 | 48 | 0 | 0 | 3,420 | 3,420 | 0 | |
| | 765+08 | TO | 768+17 | GA | 437 | 6 | 0 | 437 | 6 | 101 | 121 | 317 | 317 | 0 | |
| | 566+13 | TO | 570+86 | SB | 130 | 2 | 0 | 130 | 2 | 467 | 561 | -430 | -430 | 0 | |
| | | | | LOCAL | | | | | | | | | | | |
| | 20+17 | TO | 27+42 | W. WISCONSIN AVENUE | 1,089 | 15 | 810 | 280 | 15 | 2,234 | 2,680 | -2,401 | -2,401 | 0 | |
| | 46+13 | TO | 49+71 | N. 97TH STREET (TT) | 178 | 2 | 118 | 59 | 2 | 58 | 70 | -10 | -10 | 0 | |
| | | | | TEMPORARY | | | | | | | | | | | |
| | 11+58 | TO | 20+00 | RAMP NSH | 937 | 13 | 350 | 587 | 13 | 11 | 14 | 573 | 573 | 0 | |
| | 10+62 | TO | 23+85 | RAMP EWP | 571 | 8 | 0 | 571 | 8 | 1,935 | 2,322 | -1,751 | -1,751 | 0 | |
| | 13+30 | TO | 15+47 | RAMP EWS | 0 | 0 | 0 | 0 | 0 | 57 | 69 | -69 | -69 | 0 | |
| | 11+05 | TO | 14+15 | RAMP EWT | 209 | 3 | 0 | 209 | 3 | 58 | 70 | 140 | 140 | 0 | |
| | 11+00 | TO | 14+00 | RAMP WSB | 126 | 2 | 76 | 50 | 2 | 274 | 329 | -279 | -279 | 0 | |
| | 11+00 | TO | 13+70 | RAMP WSC | 214 | 3 | 88 | 126 | 3 | 0 | 0 | 126 | 126 | 0 | |
| | 12+98 | TO | 15+21 | RAMP WJA | 253 | 4 | 62 | 191 | 4 | 0 | 0 | 191 | 191 | 0 | |
| | 10+00 | TO | 11+36 | RAMP SBA | 1 | 0 | 62 | -61 | 0 | 245 | 295 | -356 | -356 | 0 | |
| Division 3 Subtotal Stage 3 | | | | | 143,591 | 2,010 | 7,326 | 136,265 | 2,010 | 67,816 | 81,379 | 54,886 | 54,886 | 0 | |

(CONTINUED ON NEXT SHEET)

Addendum No. 01
ID 1060-33-81
Revised Sheet 1662
August 17, 2015

EARTH WORK SUMMARY (CONTINUED)

| Division | From/To Station | Location | 205.0100 Excavation Common (CY) (1) | SPV. 0035.0100 EBS Excavation (CY) (3) | Salvaged/ Unusable Pavement Material (CY) | Available Material (4) | SPV. 0035.0101 EBS Backfill (CY) (3) | Unexpanded Fill (5) | Expanded Fill (6) | Mass Ordinate +/- (7) | Waste (8) | Borrow | Comment: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut (2) | | | | Factor 1.00 | | Factor 1.20 | | | Item 208.0100 | |
| 4 | | MAINLINE | | | | | | | | | | | |
| | 314+34 TO 353+31 | USH 45 NB | 22,943 | 321 | 2,923 | 20,020 | 321 | 51,170 | 61,404 | -41,384 | -41,384 | 0 | |
| | 162+00 TO 184+00 | IH 94 EB | 12,506 | 175 | 0 | 12,506 | 175 | 661 | 794 | 11,712 | 11,712 | 0 | |
| | 192+00 TO 196+19 | IH 94 EB | 66,183 | 927 | 1,167 | 65,016 | 927 | 0 | 0 | 65,016 | 65,016 | 0 | |
| | 193+00 TO 199+00 | IH 94 WB | 69,401 | 972 | 445 | 68,957 | 972 | 4,932 | 5,919 | 63,038 | 63,038 | 0 | |
| | | RAMPS | | | | | | | | | | | |
| | 598+95 TO 603+68 | SW | 964 | 13 | 0 | 964 | 13 | 13 | 16 | 948 | 948 | 0 | |
| | 556+10 TO 558+60 | WS | 452 | 6 | 0 | 452 | 6 | 3 | 4 | 448 | 448 | 0 | |
| | 598+50 TO 601+00 | WN | 0 | 0 | 0 | 0 | 0 | 21,744 | 26,092 | -26,092 | -26,092 | 0 | |
| | 527+00 TO 542+66 | EN | 1,095 | 15 | 46 | 1,049 | 15 | 21,549 | 25,859 | -24,809 | -24,809 | 0 | |
| | 724+59 TO 735+35 | BA | 12,305 | 172 | 851 | 11,454 | 172 | 17,880 | 21,456 | -10,003 | -10,003 | 0 | |
| | 746+47 TO 750+38 | WJ | 1,421 | 20 | 0 | 1,421 | 20 | 432 | 518 | 903 | 903 | 0 | |
| | 789+81 TO 792+86 | FC | 17,483 | 245 | 397 | 17,086 | 245 | 15,687 | 18,824 | -1,738 | -1,738 | 0 | |
| | | LOCAL | | | | | | | | | | | |
| | 29+72 TO 36+92 | W. WISCONSIN AVENUE | 1,699 | 24 | 859 | 841 | 24 | 9,093 | 10,911 | -10,070 | -10,070 | 0 | 1 |
| | 48+50 TO 50+94 | N. 95TH STREET | 411 | 6 | 0 | 411 | 6 | 140 | 168 | 244 | 244 | 0 | |
| | | GRADING | | | | | | | | | | | |
| | 179+41 TO 185+95 | SW CORE POND (EW) | 14,169 | 198 | 0 | 14,169 | 198 | 498 | 598 | 13,571 | 13,571 | 0 | |
| Division 4 Subtotal Stage 4 | | | 221,032 | 3,094 | 6,687 | 214,345 | 3,094 | 143,802 | 172,562 | 41,783 | 41,783 | 0 | |

Addendum No. 01
ID 1060-33-81
Revised Sheet 1663
August 17, 2015

(CONTINUED ON NEXT SHEET)

EARTH WORK SUMMARY (CONTINUED)

| Division | From/To Station | Location | 205.0100 Excavation Common (CY) (1) | SPV. 0035.0100 EBS Excavation (CY) (3) | Salvaged/ Unusable Pavement Material (CY) | Available Material (4) | SPV. 0035.0101 EBS Backfill (CY) (3) | Unexpanded Fill (5) | Expanded Fill (6) | Mass Ordinate +/- (7) | Waste (8) | Borrow | Comment: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut (2) | | | | Factor 1.00 | | Factor 1.20 | | | Item 208.0100 | |
| 4 | | MAINLINE | | | | | | | | | | | |
| | 314+34 TO 353+31 | USH 45 NB | 22,943 | 321 | 2,923 | 20,020 | 321 | 51,170 | 61,404 | -41,384 | -41,384 | 0 | |
| | 162+00 TO 184+00 | IH 94 EB | 12,506 | 175 | 0 | 12,506 | 175 | 661 | 794 | 11,712 | 11,712 | 0 | |
| | 192+00 TO 196+19 | IH 94 EB | 66,183 | 927 | 1,167 | 65,016 | 927 | 0 | 0 | 65,016 | 65,016 | 0 | |
| | 193+00 TO 199+00 | IH 94 WB | 69,401 | 972 | 445 | 68,957 | 972 | 4,932 | 5,919 | 63,038 | 63,038 | 0 | |
| | | RAMPS | | | | | | | | | | | |
| | 598+95 TO 603+68 | SW | 964 | 13 | 0 | 964 | 13 | 13 | 16 | 948 | 948 | 0 | |
| | 556+10 TO 558+60 | WS | 452 | 6 | 0 | 452 | 6 | 3 | 4 | 448 | 448 | 0 | |
| | 598+50 TO 601+00 | WN | 0 | 0 | 0 | 0 | 0 | 21,744 | 26,092 | -26,092 | -26,092 | 0 | |
| | 527+00 TO 542+66 | EN | 1,095 | 15 | 46 | 1,049 | 15 | 21,549 | 25,859 | -24,809 | -24,809 | 0 | |
| | 724+59 TO 735+35 | BA | 12,305 | 172 | 851 | 11,454 | 172 | 17,880 | 21,456 | -10,003 | -10,003 | 0 | |
| | 746+47 TO 750+38 | WJ | 1,421 | 20 | 0 | 1,421 | 20 | 432 | 518 | 903 | 903 | 0 | |
| | 789+81 TO 792+86 | FC | 17,483 | 245 | 397 | 17,086 | 245 | 15,687 | 18,824 | -1,738 | -1,738 | 0 | |
| | | LOCAL | | | | | | | | | | | |
| | 29+72 TO 36+92 | W. WISCONSIN AVENUE | 1,699 | 24 | 859 | 841 | 24 | 9,093 | 10,911 | -10,070 | -10,070 | 0 | 1 |
| | 48+50 TO 50+94 | N. 95TH STREET | 411 | 6 | 0 | 411 | 6 | 140 | 168 | 244 | 244 | 0 | |
| | | GRADING | | | | | | | | | | | |
| | 179+41 TO 185+95 | SW CORE POND (EW) | 14,169 | 198 | 0 | 14,169 | 198 | 498 | 598 | 13,571 | 13,571 | 0 | |
| Division 4 Subtotal Stage 4 | | | 221,032 | 3,094 | 6,687 | 214,345 | 3,094 | 143,802 | 172,562 | 41,783 | 41,783 | 0 | |

Addendum No. 01
ID 1060-33-81
Revised Sheet 1664
August 17, 2015

(CONTINUED ON NEXT SHEET)



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\030201_mq_pav.ppt PLOT DATE : 8/12/2015 4:31:14 PM PLOT BY : MSCCEJ PLOT NAME : 030201_mq_pav45 PLOT SCALE : 1:1

EARTH WORK SUMMARY (CONTINUED)

| Division | From/To Station | | | Location | 205.0100 Excavation Common (CY) (1) | SPV. 0035.0100 EBS Excavation (CY) (3) | Salvaged/ Unusable Pavement Material (CY) | Available Material (4) | SPV. 0035.0101 EBS Backfill (CY) (3) | Unexpanded Fill (5) | Expanded Fill (6) | Mass Ordinate +/- (7) | Waste (8) | Borrow | Comment: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cut (2) | | | | Factor 1.00 | | Factor 1.20 | | | Item 208.0100 | |
| 6 | | | | MAINLINE | | | | | | | | | | | |
| | 289+95 | TO | 292+14 | USH 45 NB | 0 | 0 | 0 | 0 | 0 | 41,314 | 49,577 | -49,577 | -49,577 | 0 | |
| | 192+00 | TO | 304+45 | USH 45 SB | 48,051 | 673 | 6,860 | 41,191 | 673 | 60,887 | 73,064 | -31,873 | -31,873 | 0 | |
| | 180+00 | TO | 185+50 | IH 94 EB | 4,573 | 64 | 0 | 4,573 | 64 | 52 | 62 | 4,511 | 4,511 | 0 | |
| | 88+00 | TO | 185+00 | IH 94 WB | 51,888 | 726 | 3,082 | 48,806 | 726 | 65,243 | 78,291 | -29,485 | -29,485 | 0 | |
| | | | | RAMPS | | | | | | | | | | | |
| | 559+26 | TO | 564+81 | SW | 4,872 | 68 | 713 | 4,159 | 68 | 0 | 0 | 4,159 | 4,159 | 0 | |
| | 556+53 | TO | 572+02 | CS | 6,185 | 87 | 1,745 | 4,440 | 87 | 810 | 973 | 3,468 | 3,468 | 0 | |
| | 514+22 | TO | 542+00 | EN | 13,239 | 185 | 190 | 13,048 | 185 | 29,790 | 35,748 | -22,700 | -22,700 | 0 | |
| | 581+32 | TO | 594+05 | SE | 154 | 2 | 0 | 154 | 2 | 32,119 | 38,543 | -38,389 | -38,389 | 0 | |
| | 572+01 | TO | 579+43 | ES | 1,421 | 20 | 0 | 1,421 | 20 | 1,414 | 1,697 | -276 | -276 | 0 | |
| | 604+12 | TO | 607+16 | ES | 87 | 1 | 0 | 87 | 1 | 9,250 | 11,100 | -11,013 | -11,013 | 0 | |
| | 711+00 | TO | 712+62 | LD | 959 | 13 | 0 | 959 | 13 | 0 | 0 | 959 | 959 | 0 | |
| | 738+46 | TO | 751+71 | GC | 8,906 | 125 | 249 | 8,657 | 125 | 2,206 | 2,647 | 6,010 | 6,010 | 0 | |
| | 755+28 | TO | 791+09 | GD | 26,811 | 375 | 91 | 26,721 | 375 | 19,558 | 23,469 | 3,251 | 3,251 | 0 | |
| | 787+50 | TO | 789+95 | GE | 0 | 0 | 0 | 0 | 0 | 16,336 | 19,604 | -19,604 | -19,604 | 0 | |
| | 561+12 | TO | 564+28 | GH | 177 | 2 | 0 | 177 | 2 | 392 | 471 | -293 | -293 | 0 | |
| | 702+68 | TO | 720+92 | BC | 9,809 | 137 | 0 | 9,809 | 137 | 200 | 240 | 9,568 | 9,568 | 0 | 1 |
| | 559+81 | TO | 577+88 | SA | 2,476 | 35 | 159 | 2,317 | 35 | 3,322 | 3,987 | -1,670 | -1,670 | 0 | |
| | 531+74 | TO | 546+15 | SD | 919 | 13 | 0 | 919 | 13 | 12,828 | 15,394 | -14,476 | -14,476 | 0 | |
| | 160+64 | TO | 163+93 | SM | 1,309 | 18 | 0 | 1,309 | 18 | 0 | 0 | 1,309 | 1,309 | 0 | |
| | 792+86 | TO | 796+00 | FC | 30,824 | 432 | 0 | 30,824 | 432 | 1,136 | 1,363 | 29,461 | 29,461 | 0 | |
| | 791+45 | TO | 801+14 | FH | 17,984 | 252 | 228 | 17,757 | 252 | 3,664 | 4,396 | 13,360 | 13,360 | 0 | |
| | | | | LOCAL | | | | | | | | | | | |
| | 12+42 | TO | 18+66 | S. 100TH STREET (TD) | 552 | 8 | 0 | 552 | 8 | 319 | 383 | 169 | 169 | 0 | |
| | 17+00 | TO | 21+10 | S. 100TH STREET (TE) | 429 | 6 | 0 | 429 | 6 | 6 | 7 | 423 | 423 | 0 | |
| | | | | TEMPORARY | | | | | | | | | | | |
| | 11+44 | TO | 19+24 | RAMP NSQ | 1,771 | 25 | 154 | 1,617 | 25 | 10 | 12 | 1,604 | 1,604 | 0 | |
| | 10+24 | TO | 14+90 | RAMP EWW | 113 | 2 | 0 | 113 | 2 | 45 | 54 | 59 | 59 | 0 | |
| | 12+28 | TO | 14+47 | RAMP ENB | 50 | 1 | 0 | 50 | 1 | 86 | 104 | -54 | -54 | 0 | |
| | 10+52 | TO | 14+40 | RAMP WSD | 0 | 0 | 0 | 0 | 0 | 710 | 852 | -852 | -852 | 0 | |
| | | | | GRADING | | | | | | | | | | | |
| | 487+00 | TO | 491+60 | NW INFIELD (NW) | 2,174 | 0 | 0 | 2,174 | 0 | 4,986 | 5,983 | -3,810 | -3,810 | 0 | |
| | 793+90 | TO | 799+50 | NE INFIELD GRADING (NEG) | 12,255 | 0 | 0 | 12,255 | 0 | 25,047 | 30,056 | -17,801 | -17,801 | 0 | |
| | 10+01 | TO | 14+95 | SW CORE POND (PSW) | 103,759 | 0 | 673 | 103,086 | 0 | 426 | 511 | 102,575 | 102,575 | 0 | |
| Division 6 Subtotal Stage 6 | | | | | 351,748 | 3,270 | 14,144 | 337,604 | 3,270 | 332,159 | 398,590 | -60,986 | -60,986 | 0 | |

(CONTINUED ON NEXT SHEET)

Addendum No. 01
ID 1060-33-81
Revised Sheet 1665
August 17, 2015



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\030201_mq_pav.ppt PLOT DATE : 8/12/2015 4:31:14 PM PLOT BY : MSCCEJ PLOT NAME : 030201_mq_pav47 PLOT SCALE : 1:1

EARTH WORK SUMMARY (CONTINUED)

| Division | From/To Station | Location | 205.0100 Excavation Common (CY) (1) | SPV. 0035.0100 EBS Excavation (CY) (3) | Salvaged/ Unusable Pavement Material (CY) | Available Material (4) | SPV. 0035.0101 EBS Backfill (CY) (3) | Unexpanded Fill (5) | Expanded Fill (6) | Mass Ordinate +/- (7) | Waste (8) | Borrow | Comment: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut (2) | | | | Factor 1.00 | | Factor 1.20 | | | Item 208.0100 | |
| 8 | | MAINLINE | | | | | | | | | | | |
| | 255+25 TO 265+06 | USH 45 NB | 304 | 4 | 0 | 304 | 4 | 1,921 | 2,305 | -2,001 | -2,001 | 0 | |
| | 287+46 TO 299+40 | USH 45 NB | 1,844 | 26 | 0 | 1,844 | 26 | 14,517 | 17,420 | -15,576 | -15,576 | 0 | |
| | | RAMPS | | | | | | | | | | | |
| | 561+06 TO 568+26 | NE | 814 | 11 | 0 | 814 | 11 | 1 | 1 | 813 | 813 | 0 | |
| | 523+58 TO 525+00 | EN | 0 | 0 | 0 | 0 | 0 | 599 | 718 | -718 | -718 | 0 | |
| | 587+07 TO 590+00 | SE | 31 | 0 | 0 | 31 | 0 | 13,454 | 16,145 | -16,114 | -16,114 | 0 | |
| | 708+10 TO 712+62 | LD | 1,792 | 25 | 99 | 1,693 | 25 | 310 | 372 | 1,321 | 1,321 | 0 | |
| | 761+00 TO 766+50 | GA | 1,183 | 17 | 0 | 1,183 | 17 | 75 | 89 | 1,094 | 1,094 | 0 | |
| | 764+53 TO 789+95 | GE | 11,464 | 160 | 0 | 11,464 | 160 | 5,993 | 7,191 | 4,272 | 4,272 | 0 | |
| | 799+61 TO 804+60 | BB | 7,868 | 110 | 76 | 7,792 | 110 | 14,138 | 16,966 | -9,174 | -9,174 | 0 | |
| | 796+00 TO 818+73 | FC | 13,887 | 194 | 125 | 13,763 | 194 | 53 | 64 | 13,699 | 13,699 | 0 | |
| | | LOCAL | | | | | | | | | | | |
| | 525+60 TO 533+10 | W. SCHLINGER AVENUE | 3,193 | 45 | 0 | 3,193 | 45 | 7 | 8 | 3,185 | 3,185 | 0 | |
| | 30+51 TO 42+33 | S. 100TH STREET | 2,850 | 40 | 0 | 2,850 | 40 | 274 | 329 | 2,521 | 2,521 | 0 | 1 |
| | 16+93 TO 24+70 | XM | 1,358 | 19 | 0 | 1,358 | 19 | 237 | 284 | 1,073 | 1,073 | 0 | |
| | 111+34 TO 193+01 | HA | 14,347 | 201 | 0 | 14,347 | 201 | 3,251 | 3,902 | 10,445 | 10,445 | 0 | |
| Division 8 Subtotal Stage 8 | | | 60,936 | 853 | 300 | 60,636 | 853 | 54,829 | 65,795 | -5,159 | -5,159 | 0 | |
| 9 | | MAINLINE | | | | | | | | | | | |
| | 304+00 TO 311+70 | USH 45 NB | 1,997 | 28 | 0 | 1,997 | 28 | 0 | 0 | 1,997 | 1,997 | 0 | |
| | 304+00 TO 311+20 | USH 45 SB | 1,131 | 16 | 0 | 1,131 | 16 | 22 | 26 | 1,104 | 1,104 | 0 | |
| Division 9 Subtotal Stage 9 | | | 3,128 | 44 | 0 | 3,128 | 44 | 22 | 26 | 3,102 | 3,102 | 0 | |
| Total | | | 1,066,067 | 13,221 | 40,670 | 1,025,397 | 13,221 | 814,107 | 973,793 | 51,604 | 51,604 | 0 | |

**NOTES:**

1) Salvaged/Unsuable Pavement Material is included in Cut.
3) EBS Excavation SPV.00350100 (CY) to be backfilled with EBS Backfill SPV.0035.0101 (CY). EBS Excavation volume assumed as 5% of total roadway area at an average depth of 18-inches, in addition to locations shown in plans. All EBS Excavation to be wasted offsite. EBS Backfill Factor = 1.00.
Actual extents and depths of EBS Excavation will be determined by the engineer in the field.
4) Available Material = Cut - Salvaged/Unusable Pavement Material
5) The backfill needed to construct the mechanically stabilized earth walls has been estimated. The MSE backfill quantity has been subtracted from the fill volume in all end area calculations. The width of the MSE backfill off of the back of the MSE wall has been estimated as 0.8 times the height of the retaining walls.
6) Expanded Fill. Factor = 1.20 Expanded Fill = Unexpanded Fill * Fill Factor
7) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.
8) The storm sewer excavation is estimated to be between 75,000 and 125,000 cubic yards and total structural excavation from all structures is estimated to be between 75,000 and 100,000 cubic yards dependant on the means and methods used for construction. These quantities are not included in this table and should be considered additional waste that is incidental to the storm sewer and structure items.
9) A soil expansion factor of 1.2 was used to generate estimated earthwork quantities. Due to potential soil variability, actual quantities may vary. No quantity adjustments will be made for differing soil expansion factors encountered in the field.

Addendum No. 01
ID 1060-33-81
Revised Sheet 1667
August 17, 2015

## BASE AGGREGATE ITEMS (CONTINUED)

| CATEGORY | STAGE | ROADWAY | STATION | TO | STATION | 305.0110 BASE AGGREGATE DENSE 3/4-INCH TON | 305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON | 312.0115 SELECT CRUSHED MATERIAL CY |
|---|---|---|---|---|---|---|---|---|
| 1000 | 6 | RAMP EN | | | | | | |
| | | | 514EN+22 | - | 519EN+99 | -- | 965 | 1,284 |
| | | | 523EN+58 | - | 542EN+00 | -- | 2,922 | 3,654 |
| | | | 525EN+45 | - | 533EN+60 | -- | 344 | -- |
| | | RAMP SE | | | | | | |
| | | | 581SE+73 | - | 582SE+94 | -- | 133 | 177 |
| | | | 587SE+27 | - | 593SE+88 | -- | 681 | 824 |
| | | | 592SE+41 | - | 595SE+29 | -- | 197 | -- |
| | | RAMP ES | | | | | | |
| | | | 572ES+00 | - | 579ES+22 | -- | 578 | 771 |
| | | | 604ES+32 | - | 607ES+16 | -- | 479 | 573 |
| | | RAMP GC | | | | | | |
| | | | 738GC+46 | - | 751GC+71 | -- | 2,308 | 2,981 |
| | | RAMP GD | | | | | | |
| | | | 755GD+28 | - | 779GD+54 | -- | 3,291 | 3,561 |
| | | | 780GD+76 | - | 785GD+22 | -- | 494 | 560 |
| | | | 786GD+80 | - | 791GD+07 | -- | 629 | 839 |
| | | RAMP GH | | | | | | |
| | | | 561GH+12 | - | 564GH+27 | -- | 355 | 462 |
| | | RAMP BC | | | | | | |
| | | | 702BC+67 | - | 720BC+92 | -- | 2,724 | 3,633 |
| | | RAMP SA | | | | | | |
| | | | 559SA+81 | - | 561SA+17 | -- | 121 | 161 |
| | | | 563SA+28 | - | 571SA+28 | -- | 1,036 | -- (1) |
| | | | 572SA+36 | - | 577SA+88 | -- | 781 | 1,041 |
| | | | 575SA+18 | - | 577SA+86 | -- | 157 | -- |
| | | RAMP SD | | | | | | |
| | | | 531SD+74 | - | 546SD+15 | -- | 2,556 | 3,408 |
| | | RAMP SM | | | | | | |
| | | | 160SM+64 | - | 163SM+93 | -- | 374 | 498 |
| | | RAMP FH | | | | | | |
| | | | 791FH+45 | - | 799FH+00 | -- | 1,108 | 1,433 |
| | | | 794FH+13 | - | 795FH+15 | -- | 100 | -- |
| | | **LOCAL ROADS** | | | | | | |
| | | S. 100TH STREET | | | | | | |
| | | | 17TE+00 | - | 21TE+10 | -- | 429 | -- |
| | | | 24TD+90 | - | 25TD+20 | -- | 11 | -- |

## BASE AGGREGATE ITEMS (CONTINUED)

| CATEGORY | STAGE | ROADWAY | STATION | TO | STATION | 305.0110 BASE AGGREGATE DENSE 3/4-INCH TON | 305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON | 312.0115 SELECT CRUSHED MATERIAL CY |
|---|---|---|---|---|---|---|---|---|
| | | **TEMPORARY ROADS** | | | | | | |
| 1000 | 6 | RAMP NSN | | | | | | |
| | | | 255NS+28 | - | 256NS+52 | -- | 37 | -- |
| | | | 261NS+00 | - | 263NS+43 | -- | 72 | -- |
| | | | 263NS+43 | - | 268NS+00 | -- | 136 | -- |
| | | RAMP NSQ | | | | | | |
| | | | 11NSQ+44 | - | 19NSQ+24 | -- | 1,349 | -- |
| | | RAMP EWW | | | | | | |
| | | | 10EWW+24 | - | 14EWW+90 | -- | 457 | -- |
| | | RAMP ENB | | | | | | |
| | | | 12ENB+28 | - | 14ENB+47 | -- | 148 | -- |
| | | RAMP WSD | | | | | | |
| | | | 10WSD+52 | - | 14WSD+40 | -- | 359 | -- |
| | | SUBTOTAL | | | | -- | 89,021 | 99,416 |
| | | **MAINLINE** | | | | | | |
| 1000 | 7 | IH 894/ USH 45 NB | | | | | | |
| | | | 191NS+50 | - | 208NS+50 | -- | 1,847 | 1,056 |
| | | | 314NS+34 | - | 320NS+00 | -- | 847 | 1,087 |
| | | IH 894/ USH 45 SB | | | | | | |
| | | | 191NS+50 | - | 208NS+05 | -- | 1,028 | 1,371 |
| | | | 208NS+05 | - | 217NS+00 | -- | 1,412 | 1,706 |
| | | | 269NS+00 | - | 273NS+22 | -- | 226 | 301 |
| | | IH 94 EB | | | | | | |
| | | | 117EW+00 | - | 126EW+52 | -- | 283 | 378 |
| | | | 147EW+00 | - | 152EW+95 | -- | 358 | 478 |
| | | IH 94 WB | | | | | | |
| | | | 88EW+00 | - | 94EW+00 | -- | 525 | 699 |
| | | | 148EW+65 | - | 154EW+74 | -- | 361 | 481 |
| | | **RAMPS** | | | | | | |
| | | RAMP CS | | | | | | |
| | | | 569CS+00 | - | 573CS+23 | -- | 181 | 242 |
| | | RAMP EN | | | | | | |
| | | | 516EN+05 | - | 525EN+25 | -- | 831 | 1,002 |
| | | | 541EN+00 | - | 542EN+66 | -- | 157 | 207 |
| | | RAMP BB | | | | | | |
| | | | 806BB+96 | - | 822BB+48 | -- | 2,132 | 2,795 |

Addendum No. 01
ID 1060-33-81
Revised Sheet 1671
August 17, 2015

(CONTINUED ON NEXT SHEET)



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\030201_mq_pav.ppt PLOT DATE : 8/12/2015 11:53:32 AM PLOT BY : MSCCEJ PLOT NAME : 030201_mq_pav53 PLOT SCALE : 1:1

## BASE AGGREGATE ITEMS (CONTINUED)

| CATEGORY | STAGE | ROADWAY | STATION | TO | STATION | 305.0110 BASE AGGREGATE DENSE 3/4-INCH TON | 305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON | 312.0115 SELECT CRUSHED MATERIAL CY |
|---|---|---|---|---|---|---|---|---|
| 1000 | 7 | RAMP FH | | | | | | |
| | | | 799FH+00 | - | 804FH+00 | -- | 689 | 919 |
| | | **LOCAL ROADS** | | | | | | |
| | | S. CURTIS ROAD | | | | | | |
| | | | 11CT+75 | - | 14CT+19 | -- | 1,140 | -- |
| | | **TEMPORARY ROADS** | | | | | | |
| | | RAMP NSP | | | | | | |
| | | | 11NSP+00 | - | 18NSP+79 | -- | 1,343 | -- |
| | | SUBTOTAL | | | | -- | 13,360 | 12,722 |
| | | **MAINLINE** | | | | | | |
| 1000 | 8 | IH 894/USH 45 NB | | | | | | |
| | | | 289NS+52 | - | 292NS+16 | -- | 593 | 510 |
| | | | 296NS+39 | - | 297NS+74 | -- | 510 | 447 |
| | | **RAMPS** | | | | | | |
| | | RAMP NE | | | | | | |
| | | | 561NE+06 | - | 561NE+55 | -- | 29 | 39 |
| | | RAMP EN | | | | | | |
| | | | 523EN+58 | - | 525EN+00 | -- | 65 | 86 |
| | | RAMP SE | | | | | | |
| | | | 587SE+27 | - | 590SE+00 | -- | 139 | 154 |
| | | RAMP LD | | | | | | |
| | | | 708LD+10 | - | 712LD+62 | -- | 672 | 884 |
| | | RAMP GA | | | | | | |
| | | | 761GA+00 | - | 768GA+00 | -- | 656 | 820 |
| | | RAMP GE | | | | | | |
| | | | 764GE+53 | - | 769GE+45 | -- | 148 | 197 |
| | | | 769GE+45 | - | 779GE+81 | -- | 1,041 | 1,220 |
| | | | 780GE+83 | - | 785GE+32 | -- | 596 | 795 |
| | | | 786GE+70 | - | 789GE+94 | -- | 515 | 641 |
| | | RAMP BB | | | | | | |
| | | | 799BB+61 | - | 804BB+60 | -- | 781 | 1,042 |
| | | RAMP FC | | | | | | |
| | | | 792FC+86 | - | 801FC+60 | -- | 1,152 | 1,536 |
| | | | 809FC+22 | - | 818FC+73 | | 282 | 377 |
| | | **LOCAL ROADS** | | | | | | |
| | | W. SCHLINGER AVENUE | | | | | | |
| | | | 525SCH+60 | - | 526SCH+32 | -- | 122 | -- |
| | | | 526SCH+56 | - | 533SCH+10 | -- | 1,598 | -- |

## BASE AGGREGATE ITEMS (CONTINUED)

| CATEGORY | STAGE | ROADWAY | STATION | TO | STATION | 305.0110 BASE AGGREGATE DENSE 3/4-INCH TON | 305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON | 312.0115 SELECT CRUSHED MATERIAL CY |
|---|---|---|---|---|---|---|---|---|
| 1000 | 8 | S. 100TH STREET | | | | | | |
| | | | 12TD+43 | - | 18TD+66 | -- | 281 | -- |
| | | | 30TD+51 | - | 42TD+33 | -- | 1,850 | -- |
| | | UTILITY ACCESS PATH | | | | | | |
| | | | 16XM+93 | - | 24XM+42 | -- | 555 | -- |
| | | HANK AARON STATE TRAIL | | | | | | |
| | | | 111HA+34 | - | 193HA+13 | 903 | 4,886 | -- |
| | | BIKE PATH B | | | | | | |
| | | | 10BPB+15 | - | 17BPB+41 | -- | 586 | -- |
| | | SUBTOTAL | | | | 903 | 17,057 | 8,748 |
| | | **MAINLINE** | | | | | | |
| 1000 | 9 | IH 894/ USH 45 NB | | | | | | |
| | | | 304NS+00 | - | 311NS+70 | -- | 853 | 709 |
| | | IH 894/ USH 45 SB | | | | | | |
| | | | 304NS+45 | - | 311NS+20 | -- | 729 | 544 |
| | | SUBTOTAL | | | | -- | 1,582 | 1,253 |
| | | TOTAL | | | | 903 | 256,866 | 253,455 |

1

Addendum No. 01
ID 1060-33-81
Revised Sheet 1672
August 17, 2015

## EROSION CONTROL ITEMS

| CATEGORY | STAGE | LOCATION | STATION | TO | STATION | OFFSET | 628.1104 EROSION BALES EACH | 628.1504 SILT FENCE LF | 628.1520 SILT FENCE MAINTENANCE LF | 628.1905 MOBILIZATIONS EROSION CONTROL EACH | 628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH | 628.2004 EROSION MAT CLASS I TYPE B SY | 628.2023 EROSION MAT CLASS II TYPE B SY | 628.2027 EROSION MAT CLASS II TYPE C SY | 628.7504 TEMPORARY DITCH CHECKS LF | 628.7570 ROCK BAGS EACH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **MAINLINE** | | | | | | | | | | | | | | |
| 1000 | 2 | IH 894 WB/ USH 45 NB | | | | | | | | | | | | | | |
| | | | 190NS+31 | - | 206NS+69 | RT | -- | 393 | 393 | -- | -- | 3,977 | -- | -- | 48 | -- |
| | | | 217NS+91 | - | 229NS+68 | RT | -- | 90 | 90 | -- | -- | 4,968 | 759 | -- | 144 | -- |
| | | | 230NS+47 | - | 240NS+29 | RT | -- | 182 | 182 | -- | -- | 3,289 | 248 | -- | 72 | -- |
| | | | 242NS+28 | - | 252NS+71 | RT | -- | -- | -- | -- | -- | 9,889 | -- | -- | 72 | -- |
| | | | 254NS+09 | - | 265NS+06 | RT | -- | -- | -- | -- | -- | 8,084 | -- | -- | 72 | -- |
| | | IH 94 EB | | | | | | | | | | | | | | |
| | | | 88EW+00 | - | 99EW+45 | RT | 297 | 1,474 | 1,474 | -- | -- | -- | 852 | 882 | -- | -- |
| | | | 102EW+17 | - | 111EW+66 | RT | -- | 1,089 | 1,089 | -- | -- | 136 | 1,446 | -- | -- | -- |
| | | | 112EW+73 | - | 128EW+60 | RT | -- | 1,568 | 1,568 | -- | -- | 908 | 4,052 | -- | -- | -- |
| | | | 132EW+30 | - | 133EW+89 | RT | -- | 157 | 157 | -- | -- | -- | 505 (1) | -- | 12 | -- |
| | | | 136EW+53 | - | 140EW+93 | RT | -- | -- | -- | -- | -- | 1,605 | -- | -- | 60 | -- |
| | | | 179EW+99 | - | 189EW+78 | RT | -- | 294 | 294 | -- | -- | 2,359 | 9,101 | -- | 12 | -- |
| | | IH 94 WB | | | | | | | | | | | | | | |
| | | | 185EW+00 | - | 188EW+73 | LT | -- | -- | -- | -- | -- | 2,688 | 706 | -- | 12 | -- |
| | | **RAMPS** | | | | | | | | | | | | | | |
| | | RAMP WS | | | | | | | | | | | | | | |
| | | | 540WS+90 | - | 553WS+08 | RT | -- | -- | -- | -- | -- | 9,613 | -- | -- | 96 | -- |
| | | | 560WS+02 | - | 562WS+32 | LT | -- | -- | -- | -- | -- | 369 | -- | -- | -- | -- |
| | | | 566WS+10 | - | 567WS+05 | RT | -- | -- | -- | -- | -- | 267 | -- | -- | -- | -- |
| | | RAMP WN | | | | | | | | | | | | | | |
| | | | 598WN+17 | - | 602WN+88 | RT | -- | -- | -- | -- | -- | 5,391 | -- | -- | -- | -- |
| | | | 602WN+20 | - | 605WN+60 | LT | -- | -- | -- | -- | -- | 2,343 | -- | -- | 12 | -- |
| | | RAMP EN | | | | | | | | | | | | | | |
| | | | 536EN+02 | - | 538EN+82 | LT | -- | -- | -- | -- | -- | 584 | -- | -- | 12 | -- |
| | | RAMP LA | | | | | | | | | | | | | | |
| | | | 703LA+25 | - | 717LA+90 | RT | 90 | 306 | 306 | -- | -- | 3,799 | -- | 809 | 240 | 8 |
| | | | 703LA+50 | - | 714LA+46 | LT | -- | -- | -- | -- | -- | 5,354 | -- | -- | -- | -- |
| | | RAMP GA | | | | | | | | | | | | | | |
| | | | 755GA+64 | - | 762GA+38 | RT | -- | 679 | 679 | -- | -- | 1,424 | -- | -- | 144 | -- |
| | | RAMP GB | | | | | | | | | | | | | | |
| | | | 740GB+36 | - | 752GB+03 | RT | -- | -- | -- | -- | -- | 6,032 | -- | -- | 60 | -- |
| | | RAMP SB | | | | | | | | | | | | | | |
| | | | 548SB+71 | - | 566SB+11 | RT | 167 | 502 | 502 | -- | -- | 1,844 | -- | 351 (1) | 60 | -- |
| | | | 551SB+09 | - | 554SB+87 | LT | -- | -- | -- | -- | -- | 491 | -- | -- | -- | 10 |
| | | | 556SB+56 | - | 559SB+52 | LT | -- | -- | -- | -- | -- | 544 | -- | -- | -- | -- |
| | | | 560SB+18 | - | 566SB+66 | LT | -- | -- | -- | -- | -- | 1,125 | -- | -- | 24 | -- |
| | | RAMP SC | | | | | | | | | | | | | | |
| | | | 533SC+89 | - | 538SC+00 | RT | 127 | 401 | 401 | -- | -- | -- | -- | 388 (1) | 12 | -- |

Addendum No. 01
ID 1060-33-81
Revised Sheet 1806
August 17, 2015

(CONTINUED ON NEXT SHEET)

## EROSION CONTROL ITEMS (CONTINUED)

| CATEGORY | STAGE | LOCATION | STATION | TO | STATION | OFFSET | 628.1104 EROSION BALES EACH | 628.1504 SILT FENCE LF | 628.1520 SILT FENCE MAINTENANCE LF | 628.1905 MOBILIZATIONS EROSION CONTROL EACH | 628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH | 628.2004 EROSION MAT CLASS I TYPE B SY | 628.2023 EROSION MAT CLASS II TYPE B SY | 628.2027 EROSION MAT CLASS II TYPE C SY | 628.7504 TEMPORARY DITCH CHECKS LF | 628.7570 ROCK BAGS EACH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1000 | 2 | RAMP FH | | | | | | | | | | | | | | |
| | | | 789FH+56 | - | 791FH+25 | LT | -- | -- | -- | -- | -- | -- | 666 | -- | 12 | -- |
| | | **LOCAL ROADS** | | | | | | | | | | | | | | |
| | | W. WISCONSIN AVENUE | | | | | | | | | | | | | | |
| | | | 26WX+77 | - | 27WX+62 | LT | -- | -- | -- | -- | -- | 329 | -- | -- | 36 | -- |
| | | UTILITY ACCESS PATH | | | | | | | | | | | | | | |
| | | | 10XM+12 | - | 16XM+93 | LT/RT | -- | 682 | 682 | -- | -- | 1,539 | 122 | -- | -- | -- |
| | | BIKE PATH A | | | | | | | | | | | | | | |
| | | | 10BPA+08 | - | 13BPA+17 | LT/RT | -- | 278 | 278 | -- | -- | 1,240 | -- | -- | -- | -- |
| | | RAMP BD GRADING | | | | | | | | | | | | | | |
| | | | 729BD+89 | - | 733BD+98 | LT | -- | -- | -- | -- | -- | 3,702 | -- | -- | 36 | -- |
| | | NW INFIELD | | | | | | | | | | | | | | |
| | | | 484NW+14 | - | 486NW+35 | RT | -- | -- | -- | -- | -- | 5,084 | -- | -- | 216 | -- |
| | | SUBTOTAL | | | | | 681 | 8,095 | 8,095 | -- | -- | 88,977 | 18,457 | 2,430 | 1,464 | 18 |
| | | | | | | | | | | | | | | 1 | | |
| | | **MAINLINE** | | | | | | | | | | | | | | |
| 1000 | 3 | IH 894 WB/ USH 45 NB | | | | | | | | | | | | | | |
| | | | 349NS+80 | - | 353NS+31 | RT | -- | -- | -- | -- | -- | 486 | -- | -- | -- | -- |
| | | IH 94 EB | | | | | | | | | | | | | | |
| | | | 196EW+17 | - | 198EW+65 | RT | -- | -- | -- | -- | -- | 2,302 | -- | -- | 12 | -- |
| | | IH 94 WB | | | | | | | | | | | | | | |
| | | | 198EW+97 | - | 204EW+34 | LT | -- | -- | -- | -- | -- | 1,345 | -- | -- | -- | -- |
| | | SUBTOTAL | | | | | -- | -- | -- | -- | -- | 4,133 | -- | -- | 12 | -- |
| | | **MAINLINE** | | | | | | | | | | | | | | |
| 1000 | 4 | IH 894 WB/ USH 45 NB | | | | | | | | | | | | | | |
| | | | 324NS+61 | - | 332NS+76 | RT | -- | -- | -- | -- | -- | -- | -- | -- | 132 | -- |
| | | | 334NS+91 | - | 346NS+34 | RT | -- | -- | -- | -- | -- | 19,092 | -- | -- | 132 | -- |
| | | IH 94 EB | | | | | | | | | | | | | | |
| | | | 192EW+07 | - | 196EW+17 | RT | -- | -- | -- | -- | -- | 2,667 | -- | -- | 24 | -- |
| | | IH 94 WB | | | | | | | | | | | | | | |
| | | | 193EW+92 | - | 198EW+97 | LT | -- | -- | -- | -- | -- | 7,121 | -- | -- | 48 | -- |
| | | **RAMPS** | | | | | | | | | | | | | | |
| | | RAMP EN | | | | | | | | | | | | | | |
| | | | 523EN+75 | - | 525EN+25 | RT | -- | -- | -- | -- | -- | 2,236 | -- | -- | -- | -- |
| | | RAMP BA | | | | | | | | | | | | 1 | | |
| | | | 724BA+59 | - | 734BA+18 | RT | -- | -- | -- | -- | -- | 3,493 | 5,033 | -- | 192 | -- |

Addendum No. 01
ID 1060-33-81
Revised Sheet 1807
August 17, 2015

(CONTINUED ON NEXT SHEET)



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\030203_mq_misc.ppt PLOT DATE : 8/12/2015 4:43:49 PM PLOT BY : MSCCEJ PLOT NAME : 030203_mq_misc17 PLOT SCALE : 1:1

## EROSION CONTROL ITEMS (CONTINUED)

| CATEGORY | STAGE | LOCATION | STATION | TO | STATION | OFFSET | 628.1104 EROSION BALES EACH | 628.1504 SILT FENCE LF | 628.1520 SILT FENCE MAINTENANCE LF | 628.1905 MOBILIZATIONS EROSION CONTROL EACH | 628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH | 628.2004 EROSION MAT CLASS I TYPE B SY | 628.2023 EROSION MAT CLASS II TYPE B SY | 628.2027 EROSION MAT CLASS II TYPE C SY | 628.7504 TEMPORARY DITCH CHECKS LF | 628.7570 ROCK BAGS EACH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1000 | 4 | RAMP WJ | | | | | | | | | | | | | | |
| | | | 746WJ+48 | - | 750WJ+38 | RT | -- | -- | -- | -- | -- | 894 | -- | -- | -- | -- |
| | | RAMP FC | | | | | | | | | | | | | | |
| | | | 789FC+81 | - | 792FC+86 | RT | -- | -- | -- | -- | -- | 5,537 | -- | -- | 24 | -- |
| | | **LOCAL ROADS** | | | | | | | | | | | | | | |
| | | W. WISCONSIN AVENUE | | | | | | | | | | | | | | |
| | | | 29WX+67 | - | 31WX+79 | LT | -- | -- | -- | -- | -- | 576 | -- | -- | -- | -- |
| | | SUBTOTAL | | | | | -- | -- | -- | -- | -- | 41,616 | 5,033 | -- | 552 | -- |
| | | | | | | | | | | | | | | 1 | | |
| | | **MAINLINE** | | | | | | | | | | | | | | |
| 1000 | 5 | IH 94 EB | | | | | | | | | | | | | | |
| | | | 175EW+40 | - | 179EW+99 | RT | -- | 504 | 504 | -- | -- | 7,616 | -- | -- | 24 | -- |
| | | **RAMPS** | | | | | | | | | | | | | | |
| | | RAMP WS | | | | | | | | | | | | | | |
| | | | 562WS+32 | - | 566WS+10 | LT | -- | -- | -- | -- | -- | 711 | -- | -- | 48 | -- |
| | | RAMP SB | | | | | | | | | | | | | | |
| | | | 566SB+66 | - | 573SB+00 | LT | -- | -- | -- | -- | -- | 2,203 | -- | -- | 96 | -- |
| | | | 566SB+12 | - | 575SB+30 | RT | 163 | 826 | 826 | -- | -- | 1,196 | -- | 77 | -- | -- |
| | | | | | | | | | | | | | | | 1 | |
| | | **LOCAL ROADS** | | | | | | | | | | | | | | |
| | | TEMP CHANNEL | | | | | | | | | | | | | | |
| | | | 11PSW+14 | - | 13PSW+34 | LT/RT | -- | -- | -- | -- | -- | -- | -- | -- | 10 | -- |
| | | SUBTOTAL | | | | | 163 | 1,330 | 1,330 | -- | -- | 11,726 | -- | 77 | 178 | -- |
| | | **MAINLINE** | | | | | | | | | | | | | | |
| 1000 | 6 | IH 894 EB/ USH 45 SB | | | | | | | | | | | | | | |
| | | | 192NS+00 | - | 196NS+50 | LT | -- | -- | -- | -- | -- | 661 | -- | -- | -- | -- |
| | | | 197NS+26 | - | 208NS+00 | LT | -- | -- | -- | -- | -- | 2,273 | -- | -- | 60 | -- |
| | | | 212NS+63 | - | 229NS+39 | LT | -- | 720 | 720 | -- | -- | 5,391 | 1,044 | -- | 60 | -- |
| | | | 230NS+36 | - | 238NS+48 | LT | -- | 822 | 822 | -- | -- | 3,773 | 248 | -- | -- | -- |
| | | | 280NS+43 | - | 284NS+72 | LT | 27 | 85 | 85 | -- | -- | 2,226 | -- | -- | 12 | -- |
| | | | 290NS+39 | - | 291NS+19 | LT | -- | -- | -- | -- | -- | 605 | 239 | -- | -- | -- |
| | | | 294NS+00 | - | 302NS+70 | LT | -- | -- | -- | -- | -- | 791 | -- | -- | -- | -- |
| | | IH 94 WB | | | | | | | | | | | | | | |
| | | | 88EW+00 | - | 99EW+34 | LT | 449 | 1,452 | 1,452 | -- | -- | -- | -- | 1,709 | -- | -- |
| | | | 102EW+08 | - | 111EW+62 | LT | -- | 1,146 | 1,146 | -- | -- | 140 | 1,501 | -- | -- | -- |
| | | | 112EW+73 | - | 124EW+91 | LT | -- | 1,233 | 1,233 | -- | -- | 644 | 3,423 | -- | 12 | -- |
| | | | 127EW+96 | - | 131EW+68 | LT | -- | 450 | 450 | -- | -- | 954 | 84 | -- | -- | -- |
| | | | 135EW+87 | - | 154EW+16 | LT | -- | -- | -- | -- | -- | 5,957 | -- | -- | 36 | -- |
| | | | 171EW+42 | - | 175EW+11 | LT | -- | -- | -- | -- | -- | 625 | -- | -- | 12 | -- |
| | | | 177EW+88 | - | 185EW+00 | LT | -- | -- | -- | -- | -- | 5,455 | 1,434 | -- | 60 | -- |

Addendum No. 01
ID 1060-33-81
Revised Sheet 1808
August 17, 2015

(CONTINUED ON NEXT SHEET)

## EROSION CONTROL ITEMS (CONTINUED)

| CATEGORY | STAGE | LOCATION | STATION | TO | STATION | OFFSET | 628.1104 EROSION BALES EACH | 628.1504 SILT FENCE LF | 628.1520 SILT FENCE MAINTENANCE LF | 628.1905 MOBILIZATIONS EROSION CONTROL EACH | 628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH | 628.2004 EROSION MAT CLASS I TYPE B SY | 628.2023 EROSION MAT CLASS II TYPE B SY | 628.2027 EROSION MAT CLASS II TYPE C SY | 628.7504 TEMPORARY DITCH CHECKS LF | 628.7570 ROCK BAGS EACH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **LOCAL ROADS** | | | | | | | | | | | | | | |
| 1000 | 8 | S. 100TH STREET | | | | | | | | | | | | | | |
| | | | 37TD+76 | - | 42TD+33 | RT | 20 | 62 | 62 | -- | -- | 816 | -- | -- | -- | -- |
| | | UTILITY ACCESS PATH | | | | | | | | | | | | | | |
| | | | 16XM+93 | - | 27XM+63 | RT | -- | 1,070 | 1,070 | -- | -- | 167 | -- | -- | -- | -- |
| | | | 16XM+93 | - | 24XM+70 | LT | -- | -- | -- | -- | -- | 2,209 | -- | -- | -- | -- |
| | | HANK AARON STATE TRAIL | | | | | | | | | | | | | | |
| | | | 111HA+34 | - | 193HA+13 | LT/RT | 48 | 8,080 | 8,080 | -- | -- | 16,716 | -- | -- | 624 | -- |
| | | BIKE PATH B | | | | | | | | | | | | | | |
| | | | 10BPB+15 | - | 17BPB+33 | LT/RT | -- | -- | -- | -- | -- | 3,185 | 1,291 | -- | 204 | 20 |
| | | SUBTOTAL | | | | | 146 | 9,476 | 9,476 | -- | -- | 59,454 | 1,291 | -- | 1,164 | 20 |
| | | UNDISTRIBUTED | | | | | 665 | 10,392 | 10,392 | 60 | 30 | 126,222 | 19,317 | 2,645 | 2,068 | 750 |
| | | TOTALS | | | | | 2,326 | 36,372 | 36,372 | 60 | 30 | 441,776 | 67,610 | 9,258 | 7,238 | 788 |

* ADDITIONAL QUANTITIES FOUND ELSEWHERE

1

Addendum No. 01
ID 1060-33-81
Revised Sheet 1811
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | MISCELLANEOUS QUANTITIES | SHEET: 1811 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\030203_mq_misc.ppt PLOT DATE : 8/12/2015 4:43:49 PM PLOT BY : MSCCEJ PLOT NAME : 030203_mq_misc21 PLOT SCALE : 1:1

## RESTORATION ITEMS

| CATEGORY | LOCATION | STATION | TO | STATION | 628.6505 SOIL STABILIZER TYPE A ACRE | 628.6510 SOIL STABILIZER TYPE B ACRE | 629.0205 FERTILIZER TYPE A CWT | 629.0210 FERTILIZER TYPE B CWT | 630.0130 SEEDING MIXTURE NO. 30 LB | 630.0171 SEEDING MIXTURE NO. 70A LB | 630.0180 SEEDING MIXTURE NO. 80 LB | 630.0200 SEEDING TEMPORARY LB | 631.0300 SOD WATER MGAL | 631.1000 SOD LAWN SY | SPV.0180.0200 TOPSOIL SPECIAL SY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **MAINLINE** | | | | | | | | | | | | | | |
| 1000 | IH 894 WB/ USH 45 NB | | | | | | | | | | | | | | |
| | | 190NS+31 | - | 206NS+69 | -- | -- | -- | 2.5 | 72 | -- | -- | 54 | -- | -- | 3,977 |
| | | 217NS+91 | - | 229NS+68 | -- | -- | -- | 3.6 | 90 | -- | 6 | 78 | -- | -- | 5,727 |
| | | 230NS+47 | - | 240NS+29 | -- | -- | -- | 2.2 | 60 | -- | 2 | 48 | -- | -- | 3,536 |
| | | 242NS+28 | - | 252NS+71 | -- | -- | -- | 6.2 | 178 | -- | -- | 134 | -- | -- | 9,889 |
| | | 254NS+09 | - | 265NS+06 | -- | -- | -- | 5.1 | 146 | -- | -- | 110 | -- | -- | 8,084 |
| | | 289NS+95 | - | 292NS+14 | -- | -- | -- | 3.5 | -- | 20 | -- | 75 | -- | -- | 5,498 |
| | | 295NS+29 | - | 299NS+59 | -- | -- | -- | 3.0 | -- | 18 | -- | 65 | -- | -- | 4,807 |
| | | 334NS+91 | - | 346NS+34 | -- | -- | -- | 12.0 | 344 | -- | -- | 258 | -- | -- | 19,092 |
| | | 349NS+80 | - | 353NS+31 | -- | -- | -- | .3 | 9 | -- | -- | 7 | -- | -- | 486 |
| | IH 894 EB/ USH 45 SB | | | | | | | | | | | | | | |
| | | 197NS+26 | - | 208NS+00 | -- | -- | -- | 1.8 | 53 | -- | -- | 40 | -- | -- | 2,934 |
| | | 212NS+63 | - | 229NS+39 | -- | -- | -- | 4.1 | 98 | -- | 8 | 87 | -- | -- | 6,435 |
| | | 230NS+36 | - | 238NS+48 | -- | -- | -- | 2.5 | 68 | -- | 2 | 55 | -- | -- | 4,020 |
| | | 280NS+43 | - | 284NS+72 | -- | -- | -- | 1.4 | 41 | -- | -- | 31 | -- | -- | 2,226 |
| | | 290NS+39 | - | 291NS+19 | -- | -- | .5 | -- | -- | 4 | -- | 12 | -- | -- | 845 |
| | | 294NS+00 | - | 302NS+70 | -- | -- | -- | .5 | -- | 3 | -- | 11 | -- | -- | 791 |
| | IH 94 EB | | | | | | | | | | | | | | |
| | | 88EW+00 | - | 99EW+45 | -- | .2 | -- | 1.1 | -- | 7 | -- | 24 | -- | -- | 1,735 |
| | | 102EW+17 | - | 111EW+66 | -- | .2 | -- | 1.0 | 3 | -- | 11 | 22 | -- | -- | 1,582 |
| | | 112EW+73 | - | 128EW+60 | -- | -- | -- | 3.1 | 17 | -- | 30 | 67 | -- | -- | 4,960 |
| | | 132EW+30 | - | 133EW+89 | -- | -- | -- | .3 | -- | -- | 4 | 7 | -- | -- | 505 |
| | | 136EW+53 | - | 140EW+93 | -- | -- | -- | 1.0 | 29 | -- | -- | 22 | -- | -- | 1,602 |
| | | 175EW+40 | - | 189EW+78 | -- | -- | 3.0 | 5.5 | -- | 49 | -- | 183 | -- | -- | 13,505 |
| | | 192EW+07 | - | 198EW+65 | -- | -- | -- | 3.1 | 90 | -- | -- | 68 | -- | -- | 4,969 |
| | IH 94 WB | | | | | | | | | | | | | | |
| | | 88EW+00 | - | 99EW+34 | -- | .2 | -- | 1.1 | -- | 7 | -- | 24 | -- | -- | 1,709 |
| | | 102EW+08 | - | 111EW+62 | -- | .2 | -- | 1.0 | 3 | -- | 11 | 23 | -- | -- | 1,641 |
| | | 112EW+73 | - | 124EW+91 | -- | -- | -- | 3.1 | 12 | -- | 31 | 66 | -- | -- | 4,867 |
| | | 127EW+00 | - | 131EW+68 | -- | -- | -- | .7 | 18 | -- | 1 | 15 | -- | -- | 1,038 |
| | | 135EW+87 | - | 154EW+16 | -- | -- | -- | 3.7 | 106 | -- | -- | 80 | -- | -- | 5,873 |
| | | 171EW+42 | - | 175EW+11 | -- | -- | -- | .4 | 12 | -- | -- | 9 | -- | -- | 627 |
| | | 177EW+88 | - | 189EW+58 | -- | -- | -- | 6.2 | -- | 36 | -- | 134 | -- | -- | 9,866 |
| | | 193EW+92 | - | 204EW+34 | -- | -- | -- | 5.3 | 153 | -- | -- | 115 | -- | -- | 8,466 |
| | **RAMPS** | | | | | | | | | | | | | | |
| | RAMP WS | | | | | | | | | | | | | | |
| | | 540WS+90 | - | 553WS+08 | -- | -- | -- | 6.0 | 173 | -- | -- | 130 | -- | -- | 9,560 |
| | | 560WS+02 | - | 566WS+05 | -- | -- | -- | .8 | 25 | -- | -- | 19 | -- | -- | 1,346 |
| | RAMP WN | | | | | | | | | | | | | | |
| | | 598WN+17 | - | 605WN+60 | -- | -- | -- | 4.9 | 43 | 20 | -- | 105 | -- | -- | 7,734 |
| | RAMP EN | | | | | | | | | | | | | | |
| | | 523EN+58 | - | 534EN+71 | -- | -- | -- | 12.9 | 339 | 7 | -- | 278 | -- | -- | 20,538 |
| | | 536EN+02 | - | 538EN+82 | -- | -- | -- | .4 | 11 | -- | -- | 8 | -- | -- | 584 |
| | RAMP SE | | | | | | | | | | | | | | |
| | | 587SE+07 | - | 594SE+10 | -- | -- | -- | 4.6 | 132 | -- | -- | 99 | -- | -- | 7,328 |

1

Addendum No. 01
ID 1060-33-81
Revised Sheet 1812
August 17, 2015

(CONTINUED ON NEXT SHEET)



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\030203_mq_misc.ppt PLOT DATE : 8/12/2015 11:39:20 AM PLOT BY : MSCCEJ PLOT NAME : 030203_mq_misc22 PLOT SCALE : 1:1

## RESTORATION ITEMS (CONTINUED)

| CATEGORY | LOCATION | STATION | TO | STATION | 628.6505 SOIL STABILIZER TYPE A ACRE | 628.6510 SOIL STABILIZER TYPE B ACRE | 629.0205 FERTILIZER TYPE A CWT | 629.0210 FERTILIZER TYPE B CWT | 630.0130 SEEDING MIXTURE NO. 30 LB | 630.0171 SEEDING MIXTURE NO. 70A LB | 630.0180 SEEDING MIXTURE NO. 80 LB | 630.0200 SEEDING TEMPORARY LB | 631.0300 SOD WATER MGAL | 631.1000 SOD LAWN SY | SPV.0180.0200 TOPSOIL SPECIAL SY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1000 | RAMP LA | 703LA+25 | - | 717LA+90 | -- | -- | -- | 6.3 | 180 | -- | -- | 135 | .1 | 4 | 9,966 |
| | RAMP LD | 708LD+03 | - | 712LD+62 | -- | -- | -- | 1.4 | 42 | -- | -- | 31 | -- | -- | 2,296 |
| | RAMP GA | 755GA+64 | - | 762GA+38 | -- | -- | -- | .9 | 26 | -- | -- | 20 | -- | -- | 1,424 |
| | RAMP GB | 740GB+36 | - | 752GB+03 | -- | -- | -- | 3.8 | 109 | -- | -- | 82 | -- | -- | 6,032 |
| | RAMP GC | 738GC+46 | - | 751GC+72 | -- | -- | -- | 2.5 | 71 | -- | -- | 54 | -- | -- | 3,935 |
| | RAMP GD | 755GD+28 | - | 761GD+58 | -- | -- | -- | .8 | 22 | -- | -- | 17 | -- | -- | 1,198 |
| | | 764GD+66 | - | 774GD+00 | -- | -- | -- | 1.2 | 32 | -- | -- | 24 | 3.2 | 141 | 1,869 |
| | | 780GD+50 | - | 784GD+71 | -- | -- | -- | 1.4 | 41 | -- | -- | 31 | -- | -- | 2,241 |
| | | 786GD+67 | - | 791GD+07 | -- | -- | 3.3 | .2 | -- | 21 | -- | 76 | -- | -- | 5,588 |
| | RAMP GE | 764GE+53 | - | 780GE+15 | -- | -- | -- | 3.2 | 91 | -- | -- | 69 | -- | -- | 5,054 |
| | | 780GE+68 | - | 785GE+46 | -- | -- | -- | 2.2 | 63 | -- | -- | 47 | -- | -- | 3,463 |
| | | 786GE+58 | - | 789GE+95 | -- | -- | -- | 3.1 | -- | 18 | -- | 67 | -- | -- | 4,914 |
| | RAMP BA | 724BA+59 | - | 734BA+18 | -- | -- | -- | 5.4 | 63 | -- | 37 | 116 | -- | -- | 8,526 |
| | RAMP BB | 799BB+60 | - | 804BB+61 | -- | -- | -- | 3.4 | 14 | 34 | -- | 74 | -- | -- | 5,461 |
| | | 806BB+93 | - | 822BB+48 | -- | -- | -- | 6.3 | 181 | -- | -- | 136 | -- | -- | 10,040 |
| | RAMP BC | 702BC+52 | - | 720BC+92 | -- | -- | -- | 1.5 | 44 | -- | -- | 33 | -- | -- | 2,416 |
| | RAMP WJ | 746WJ+48 | - | 750WJ+38 | -- | -- | -- | .6 | 17 | -- | -- | 13 | -- | -- | 894 |
| | RAMP SA | 563SA+28 | - | 571SA+28 | -- | -- | -- | .9 | 25 | -- | -- | 19 | -- | -- | 1,367 |
| | | 573SA+03 | - | 577SA+88 | -- | -- | -- | .3 | 8 | -- | -- | 6 | -- | -- | 432 |
| | RAMP SB | 548SB+71 | - | 575SB+30 | -- | -- | -- | 5.0 | 121 | 5 | -- | 107 | -- | -- | 7,883 |
| | RAMP SC | 533SC+89 | - | 538SC+00 | -- | -- | -- | .2 | 4 | -- | 2 | 6 | -- | -- | 388 |
| | RAMP SD | 531SD+76 | - | 546SD+15 | -- | -- | -- | 3.5 | 51 | -- | 20 | 75 | -- | -- | 5,535 |

1

Addendum No. 01
ID 1060-33-81
Revised Sheet 1813
August 17, 2015

(CONTINUED ON NEXT SHEET)

## RESTORATION ITEMS (CONTINUED)

| CATEGORY | LOCATION | STATION | TO | STATION | 628.6505 SOIL STABILIZER TYPE A ACRE | 628.6510 SOIL STABILIZER TYPE B ACRE | 629.0205 FERTILIZER TYPE A CWT | 629.0210 FERTILIZER TYPE B CWT | 630.0130 SEEDING MIXTURE NO. 30 LB | 630.0171 SEEDING MIXTURE NO. 70A LB | 630.0180 SEEDING MIXTURE NO. 80 LB | 630.0200 SEEDING TEMPORARY LB | 631.0300 SOD WATER MGAL | 631.1000 SOD LAWN SY | SPV.0180.0200 TOPSOIL SPECIAL SY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1000 | RAMP FC | | | | | | | | | | | | | | |
| | | 789FC+81 | - | 802FC+15 | -- | -- | -- | 6.9 | 199 | -- | -- | 149 | -- | -- | 11,025 |
| | RAMP FH | | | | | | | | | | | | | | |
| | | 789FH+56 | - | 806FH+55 | -- | -- | -- | 10.4 | 48 | 51 | -- | 224 | -- | -- | 16,582 (1) |
| | **LOCAL ROADS** | | | | | | | | | | | | | | |
| | W. SCHLINGER AVENUE | | | | | | | | | | | | | | |
| | | 525SCH+60 | - | 533SCH+10 | -- | -- | -- | .2 | -- | -- | -- | -- | 6.2 | 276 | 276 |
| | S. 100TH STREET | | | | | | | | | | | | | | |
| | | 12TD+42 | - | 19TD+27 | -- | -- | -- | .6 | -- | -- | -- | -- | 20.0 | 889 | 889 |
| | | 30TD+49 | - | 37TD+07 | -- | -- | -- | .5 | -- | -- | -- | -- | 17.6 | 782 | 782 |
| | | 37TD+76 | - | 42TD+33 | -- | -- | -- | .7 | 15 | -- | -- | 12 | 8.1 | 359 | 1,175 |
| | | 17TE+00 | - | 21TE+10 | -- | -- | -- | .1 | -- | -- | -- | -- | 3.2 | 141 | 141 |
| | W. WISCONSIN AVENUE | | | | | | | | | | | | | | |
| | | 19WX+98 | - | 27WX+13 | -- | -- | -- | 1.7 | 6 | -- | -- | 5 | 53.3 | 2,372 | 2,701 (1) |
| | | 30WX+07 | - | 36WX+92 | -- | -- | -- | 1.2 | 11 | -- | -- | 8 | 29.2 | 1,301 | 1,876 |
| | N. 97TH STREET | | | | | | | | | | | | | | |
| | | 46TT+13 | | 49TT+58 | -- | -- | -- | .4 | -- | -- | -- | -- | 12.6 | 561 | 561 |
| | N. 95TH STREET | | | | | | | | | | | | | | |
| | | 48TRN+50 | | 49TRN+59 | -- | -- | -- | .1 | -- | -- | -- | -- | 4.0 | 176 | 176 |
| | | 50TRN+52 | - | 50TRN+94 | -- | -- | -- | -- | -- | -- | -- | -- | .8 | 37 | 37 |
| | S.CURTIS ROAD | | | | | | | | | | | | | | |
| | | 11CT+33 | | 13CT+98 | -- | -- | -- | .1 | 3 | -- | -- | 3 | -- | -- | 148 |
| | UTILITY ACCESS PATH | | | | | | | | | | | | | | |
| | | 10XM+12 | - | 24XM+70 | -- | -- | -- | 2.5 | 71 | -- | 1 | 55 | -- | -- | 4,037 |
| | HANK AARON STATE TRAIL | | | | | | | | | | | | | | |
| | | 111HA+34 | - | 193HA+13 | -- | -- | -- | 10.5 | 301 | -- | -- | 226 | -- | -- | 16,716 |
| | BIKE PATH A | | | | | | | | | | | | | | |
| | | 10BPA+08 | - | 13BPA+17 | -- | -- | -- | .8 | -- | 5 | -- | 17 | -- | -- | 1,239 |
| | BIKE PATH B | | | | | | | | | | | | | | |
| | | 10BPB+15 | - | 17BPB+33 | -- | -- | -- | 2.8 | 58 | -- | 10 | 61 | -- | -- | 4,476 |
| | RAMP BD GRADING | | | | | | | | | | | | | | |
| | | 729BD+89 | - | 733BD+98 | -- | -- | -- | 2.3 | 67 | -- | -- | 50 | -- | -- | 3,702 |
| | BURLEIGH BOOSTER STATION | | | | | | | | | | | | | | |
| | | UTILITY WORK | | | -- | -- | -- | .4 | -- | -- | -- | -- | 15.9 | 709 | 709 |
| | NW INFIELD | | | | | | | | | | | | | | |
| | | 484NW+14 | - | 491NW+70 | -- | -- | -- | 9.0 | -- | 52 | -- | 194 | -- | -- | 14,322 |

(1)

Addendum No. 01
ID 1060-33-81
Revised Sheet 1814
August 17, 2015

(CONTINUED ON NEXT SHEET)

## RESTORATION ITEMS (CONTINUED)

| CATEGORY | LOCATION | STATION | TO | STATION | 628.6505 SOIL STABILIZER TYPE A ACRE | 628.6510 SOIL STABILIZER TYPE B ACRE | 629.0205 FERTILIZER TYPE A CWT | 629.0210 FERTILIZER TYPE B CWT | 630.0130 SEEDING MIXTURE NO. 30 LB | 630.0171 SEEDING MIXTURE NO. 70A LB | 630.0180 SEEDING MIXTURE NO. 80 LB | 630.0200 SEEDING TEMPORARY LB | 631.0300 SOD WATER MGAL | 631.1000 SOD LAWN SY | SPV.0180.0200 TOPSOIL SPECIAL SY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1000 | SW CORE POND | 10PSW+00 | - | 14PSW+98 | -- | .8 | 7.3 | -- | -- | 42 | -- | 156 | -- | -- | 11,541 |
| | TEMP POND | 180EW+50 | - | 185EW+96 | -- | 1.4 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | TEMP CHANNEL | 11PSW+14 | - | 13PSW+34 | -- | .9 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | SUBTOTALS | | | | -- | 3.7 | 14.1 | 220.2 | 4,309 | 399 | 176 | 4,961 | 174.2 | 7,748 | 372,415 |
| | UNDISTRIBUTED | | | | 1.0 | 15.0 | 1.4 | 22.0 | 431 | 40 | 18 | 496 | 17.4 | 775 | -- |
| | TOTALS | | | | 1.0 | 18.7 | 15.5 | 242.2 | 4,740 | 439 | 194 | 5,457 | 191.6 | 8,523 | 372,415 |

1

## ROOT STOCK

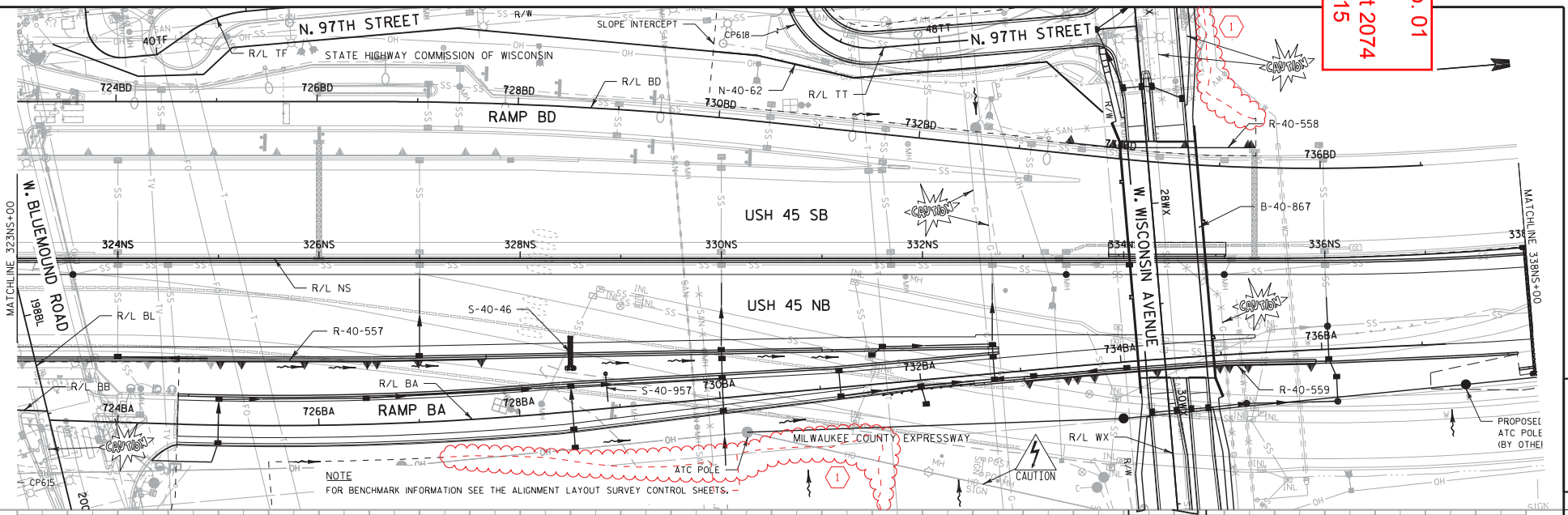
| CATEGORY | LOCATION | SPV.0005.0001 ROOT STOCK PROTECTION ACRE | SPV.0060.0013 SHALLOW MARSH ROOTSTOCK EACH |
|---|---|---|---|
| | **MAINLINE** | | |
| 1000 | SW CORE POND | 0.1 | 130 |
| | TOTAL | 0.1 | 130 |

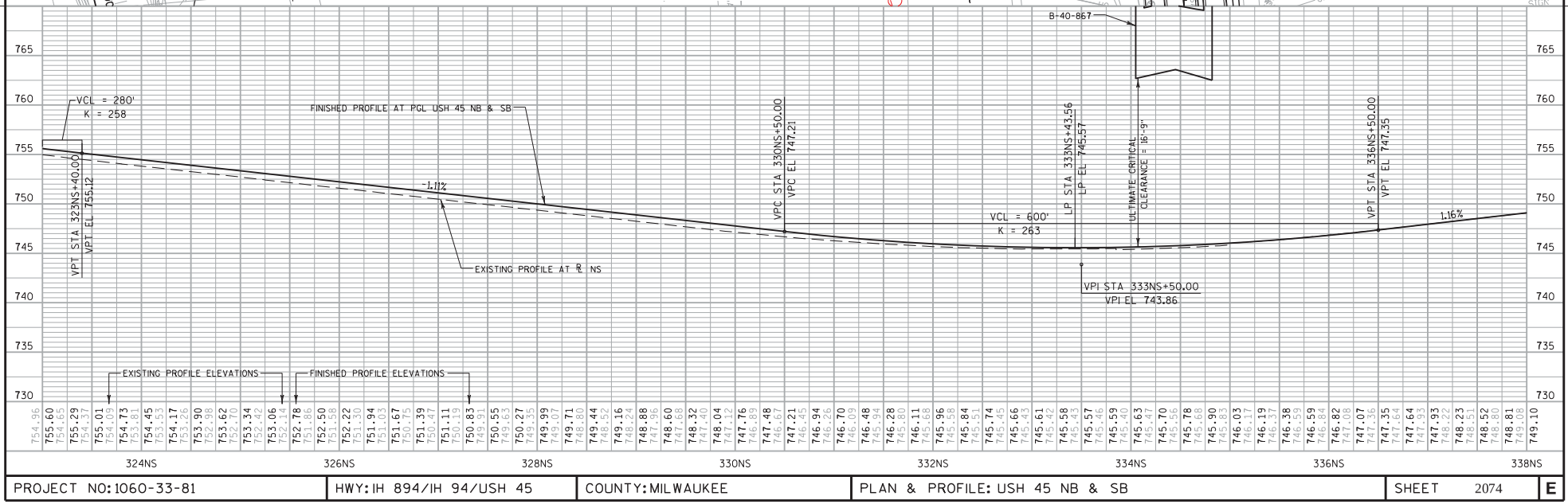
Addendum No. 01
ID 1060-33-81
Revised Sheet 1815
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | MISCELLANEOUS QUANTITIES | SHEET: 1815 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\030203_mq_misc.ppt PLOT DATE : 8/12/2015 4:43:49 PM PLOT BY : MSCCEJ PLOT NAME : 030203_mq_misc25 PLOT SCALE : 1:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 2074
August 17, 2015



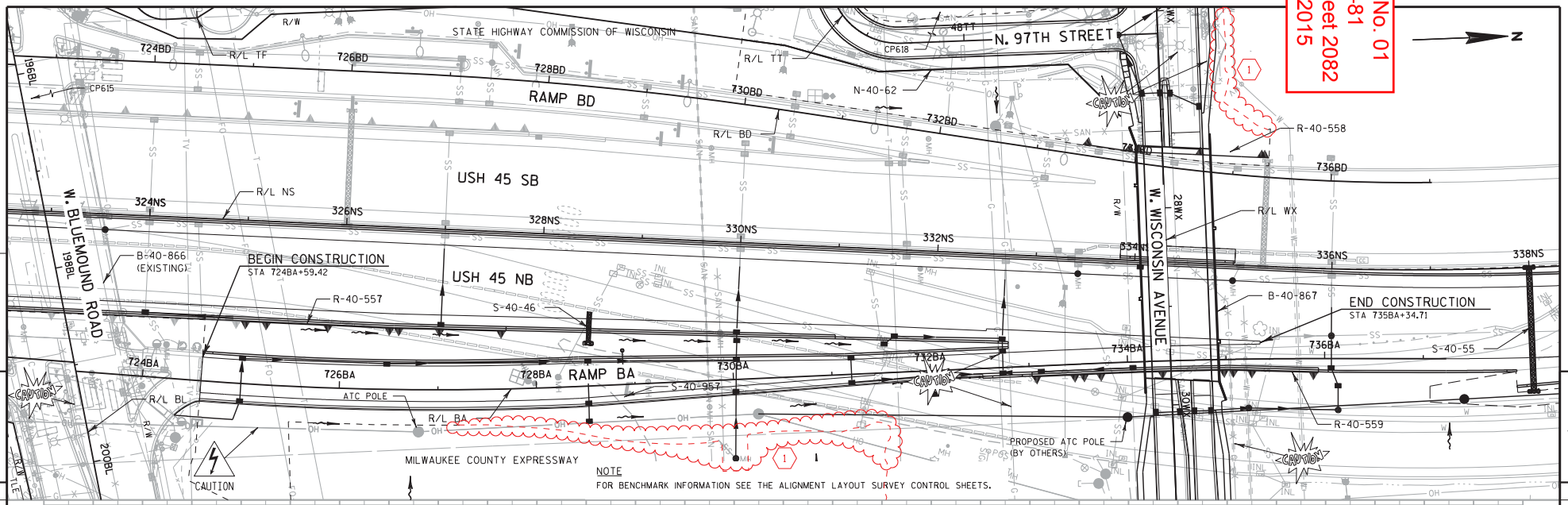



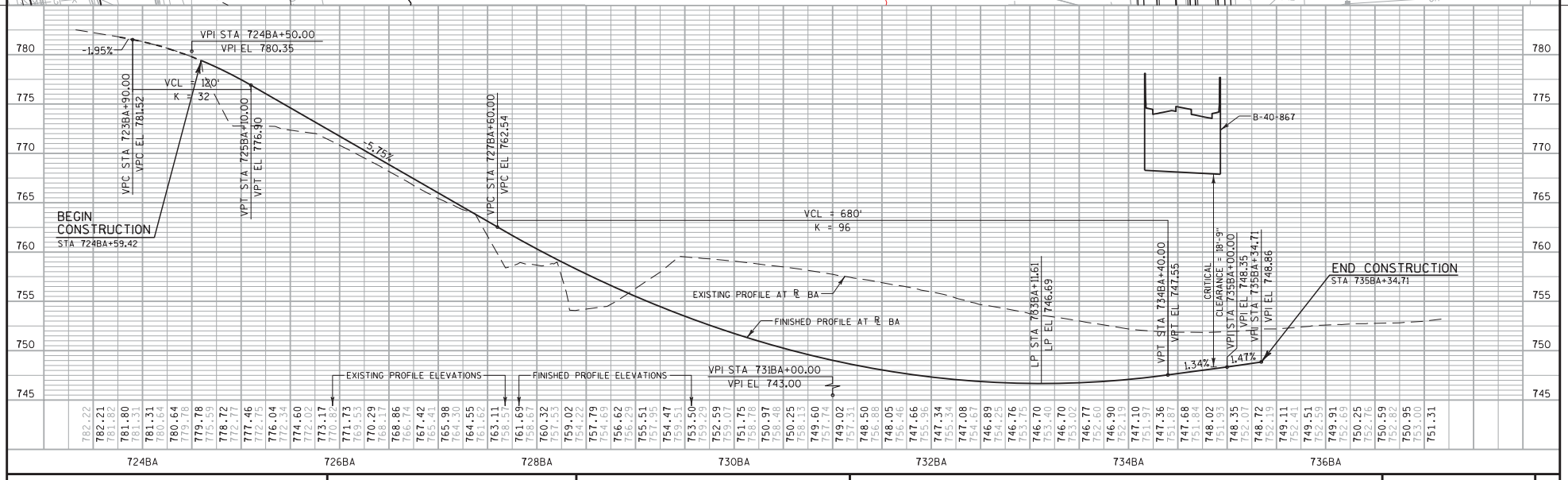

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | PLAN & PROFILE: USH 45 NB & SB | SHEET 2074 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\050110_pp.dgn PLOT DATE : 12-AUG-2015 18:28 PLOT BY : MSCD1S PLOT NAME : 050110_pp PLOT SCALE : 100:1

WISDOT/CADDS SHEET 40

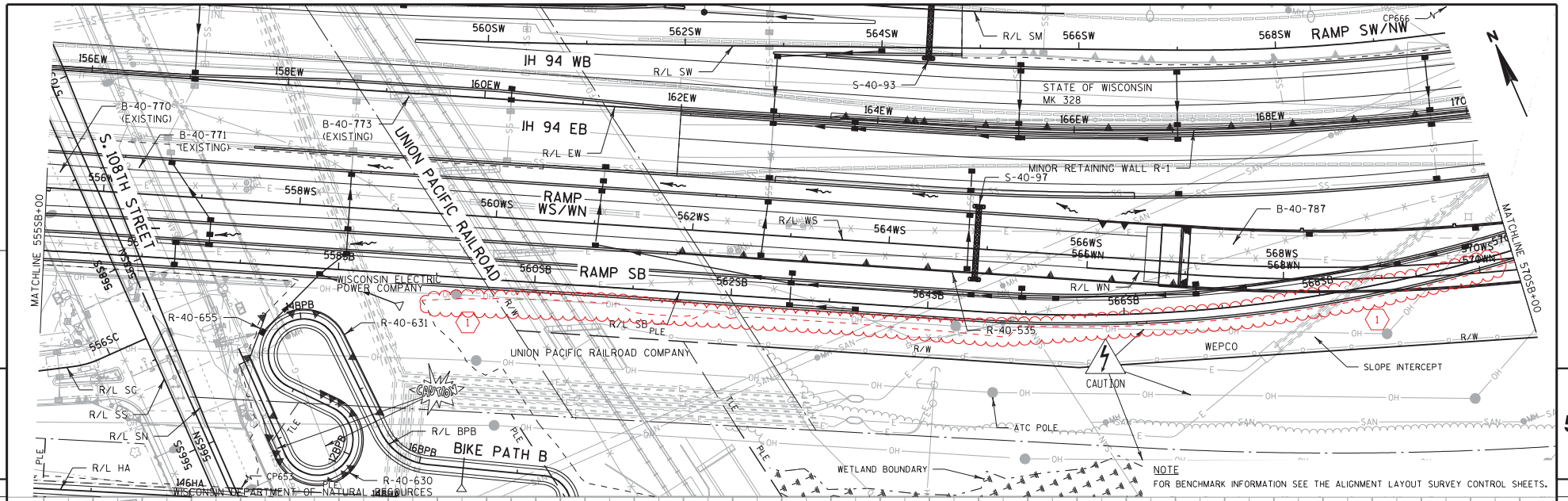
Addendum No. 01
ID 1060-33-81
Revised Sheet 2082
August 17, 2015

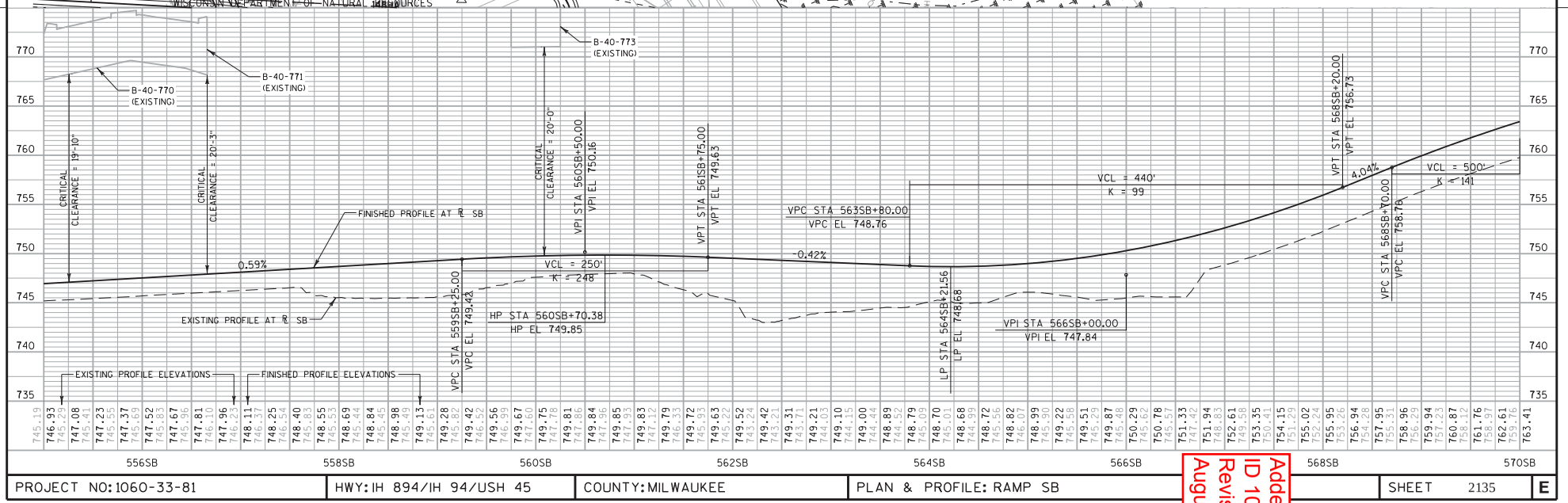



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | PLAN & PROFILE: RAMP BA | SHEET 2082 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\050316_pp.dgn PLOT DATE : 12-AUG-2015 18:28 PLOT BY : MSCD1S PLOT NAME : 050316_pp PLOT SCALE : 100:1



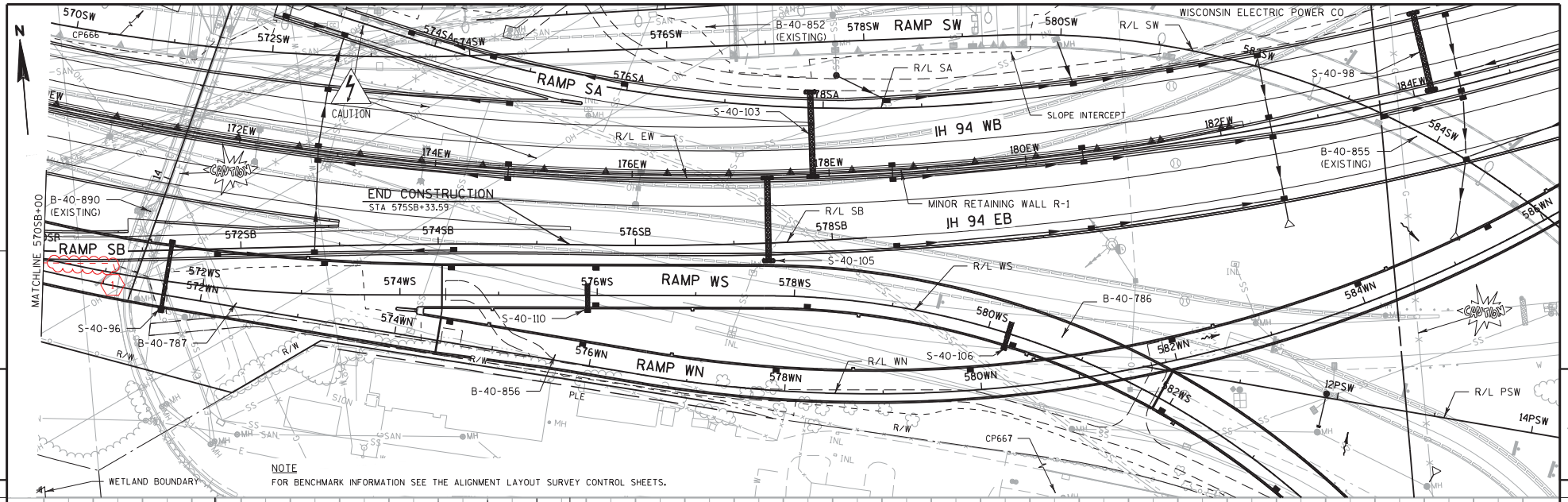



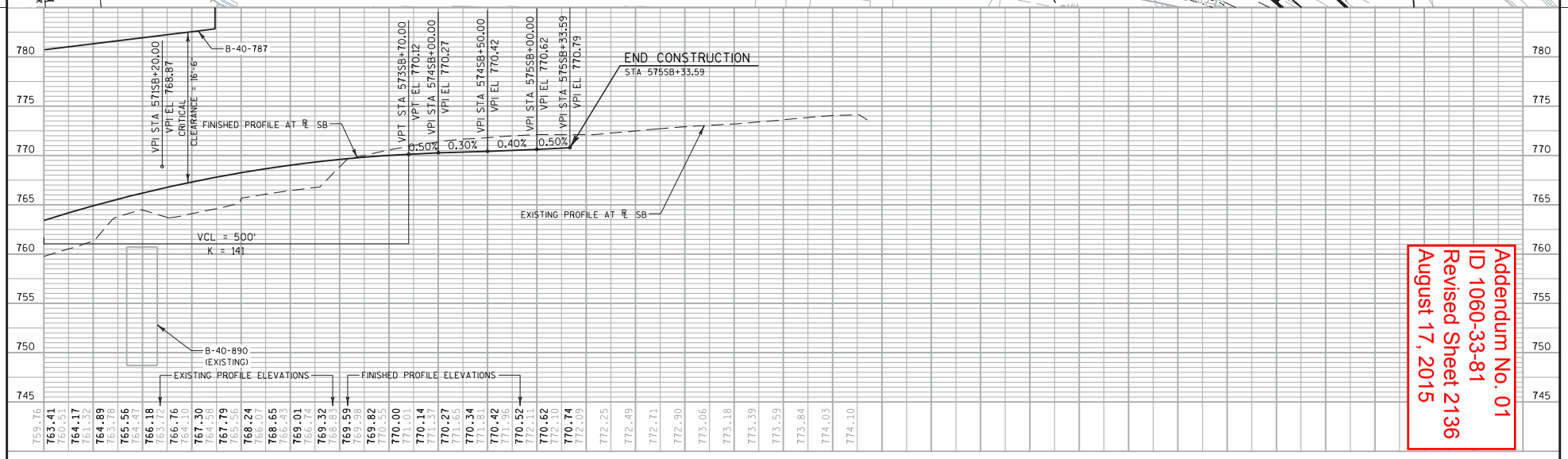

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | PLAN & PROFILE: RAMP SB | SHEET 2135 | E |
|---|---|---|---|---|---|

FILE NAME : W:\CADD\Final\10603381_Z2\Roads\cds\050328_pp.dgn PLOT DATE : 11-AUG-2015 13:50 PLOT BY : MSCD1S PLOT NAME : 050328_pp 100:1

WISDOT/CADDS SHEET 40

Addendum No. 01
ID 1060-33-81
Revised Sheet 2135
August 17, 2015

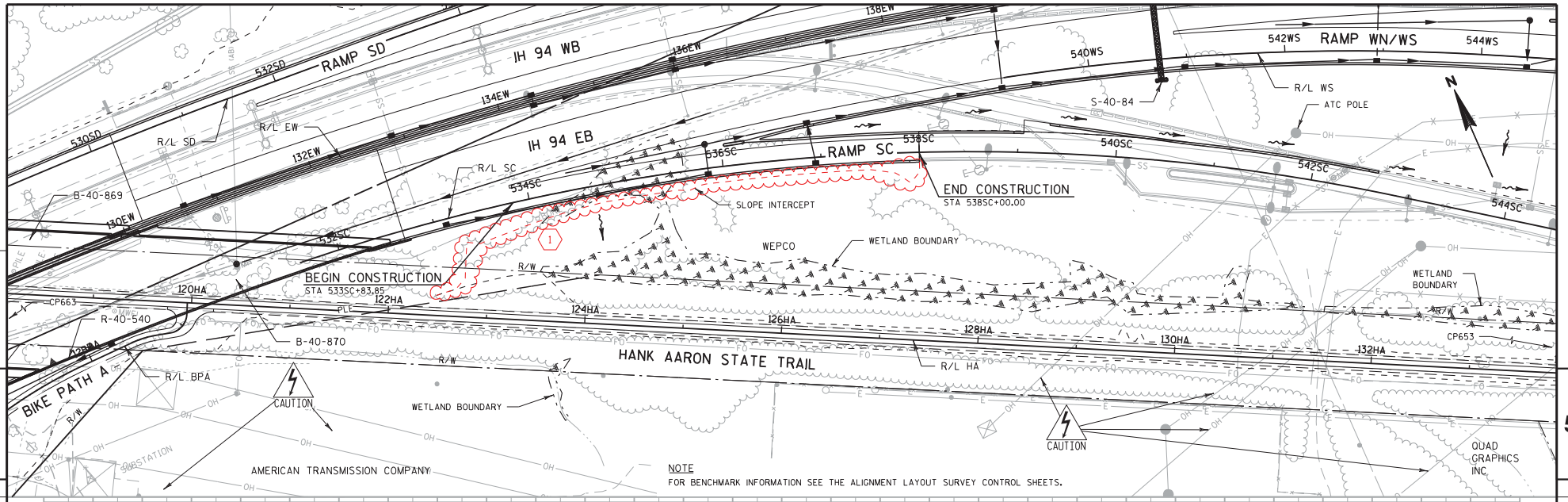


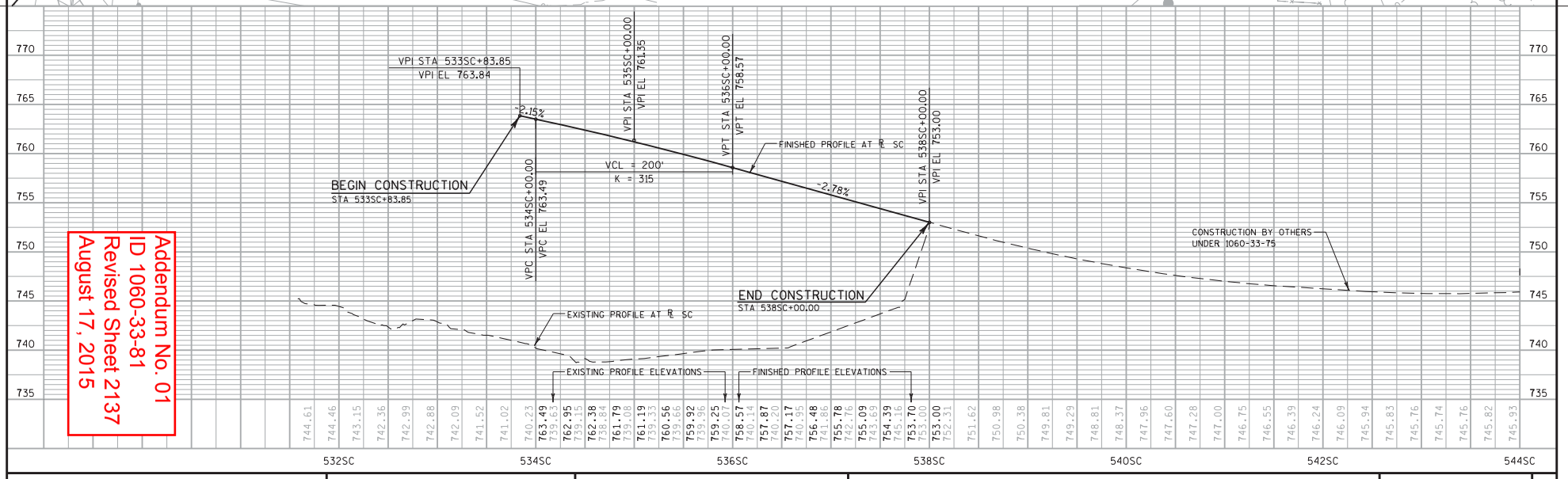




Addendum No. 01
ID 1060-33-81
Revised Sheet 2136
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | PLAN & PROFILE: RAMP SB | SHEET 2136 | E |
|---|---|---|---|---|---|

FILE NAME : W:\CADD\Final\10603381_Z2\Roads\cds\050329_pp.dgn
PLOT DATE : 11-AUG-2015 13:53
PLOT BY : MSCD1S
PLOT NAME : 050329_pp
PLOT SCALE : 100:1



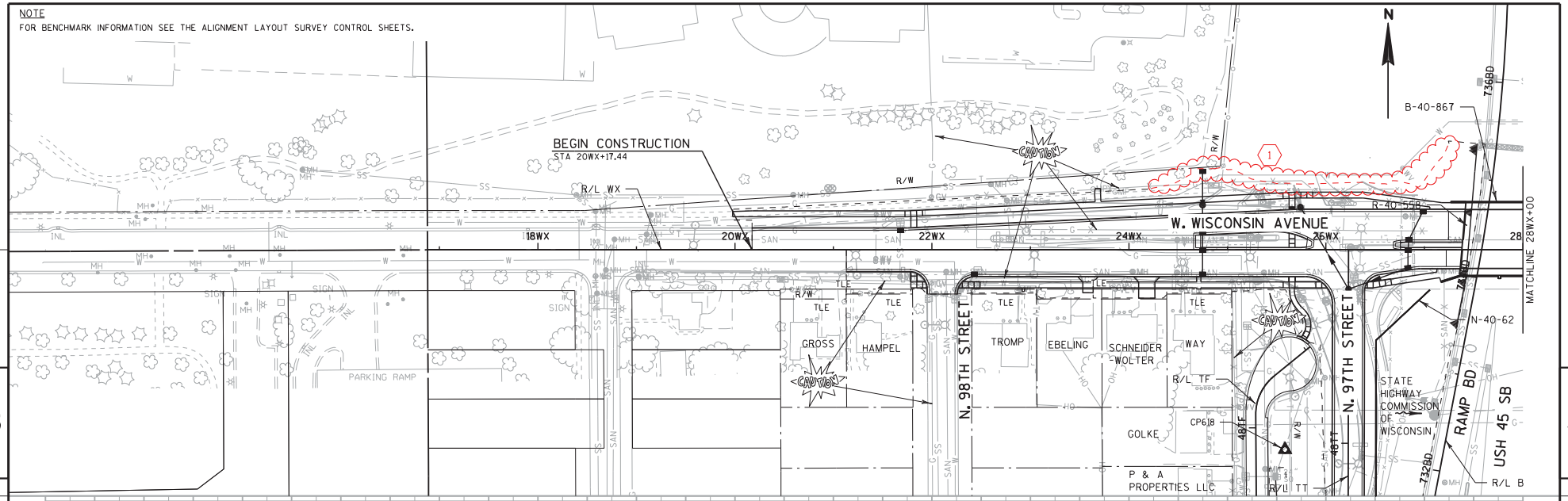



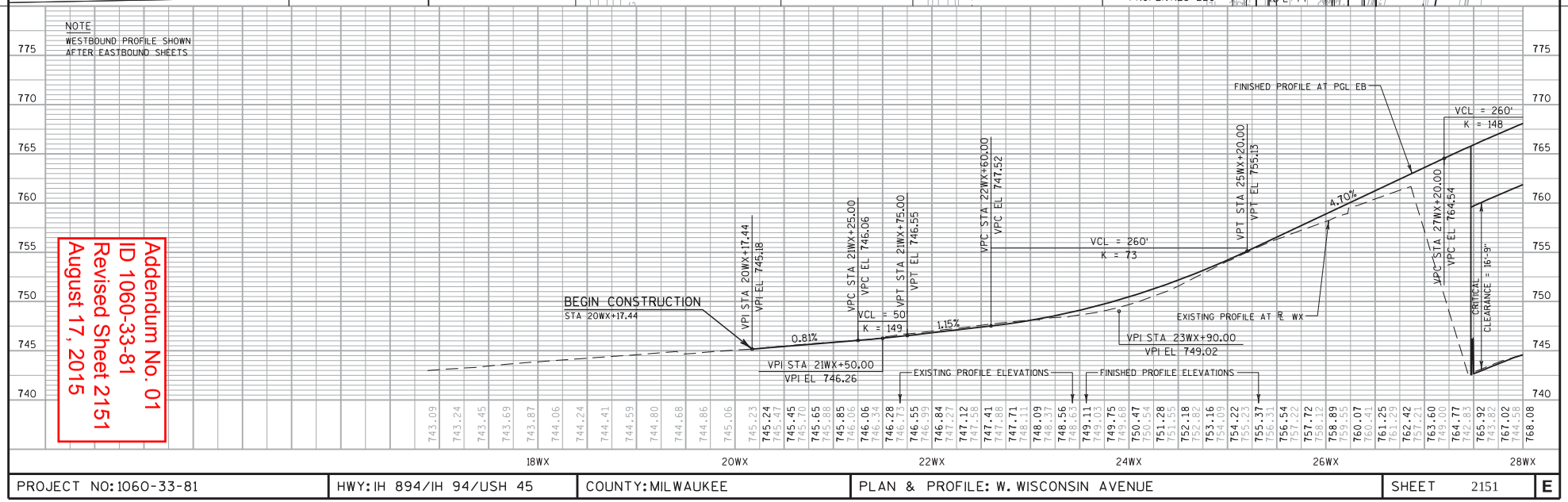

Addendum No. 01
ID 1060-33-81
Revised Sheet 2137
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | PLAN & PROFILE: RAMP SC | SHEET 2137 | E |
|---|---|---|---|---|---|

FILE NAME : W:\CADD\Final\10603381_Z2\Roads\cds\050330_pp.dgn PLOT DATE : 11-AUG-2015 13:57 PLOT BY : MSCD1S PLOT NAME : 050330_pp PLOT SCALE : 100:1

NOTE
FOR BENCHMARK INFORMATION SEE THE ALIGNMENT LAYOUT SURVEY CONTROL SHEETS.



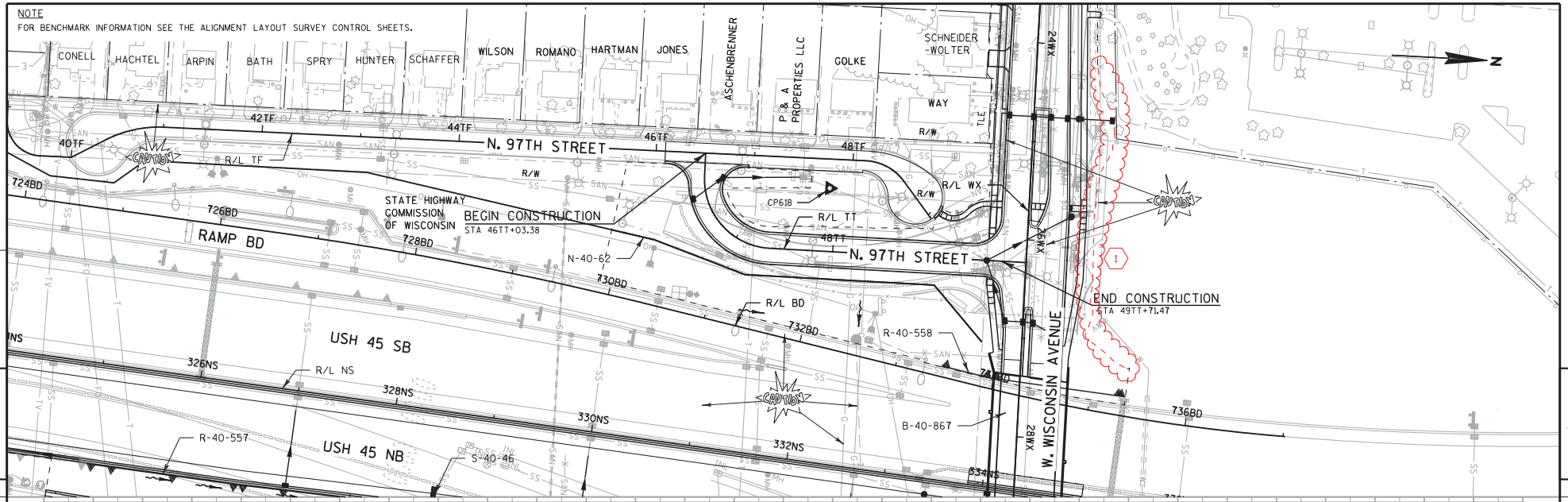

Addendum No. 01
ID 1060-33-81
Revised Sheet 2151
August 17, 2015

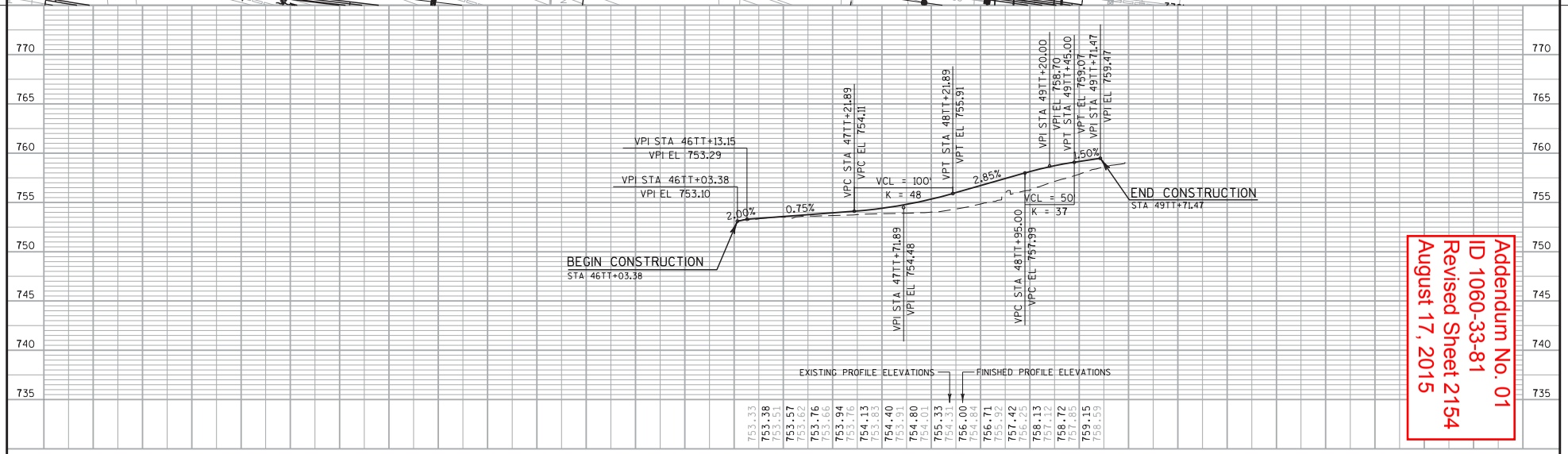
| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | PLAN & PROFILE: W. WISCONSIN AVENUE | SHEET 2151 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\050405_pp.dgn PLOT DATE : 12-AUG-2015 18:24 PLOT BY : MSCD1S PLOT NAME : 050405_pp PLOT SCALE : 100:1

WISDOT/CADDS SHEET 40

NOTE
FOR BENCHMARK INFORMATION SEE THE ALIGNMENT LAYOUT SURVEY CONTROL SHEETS.

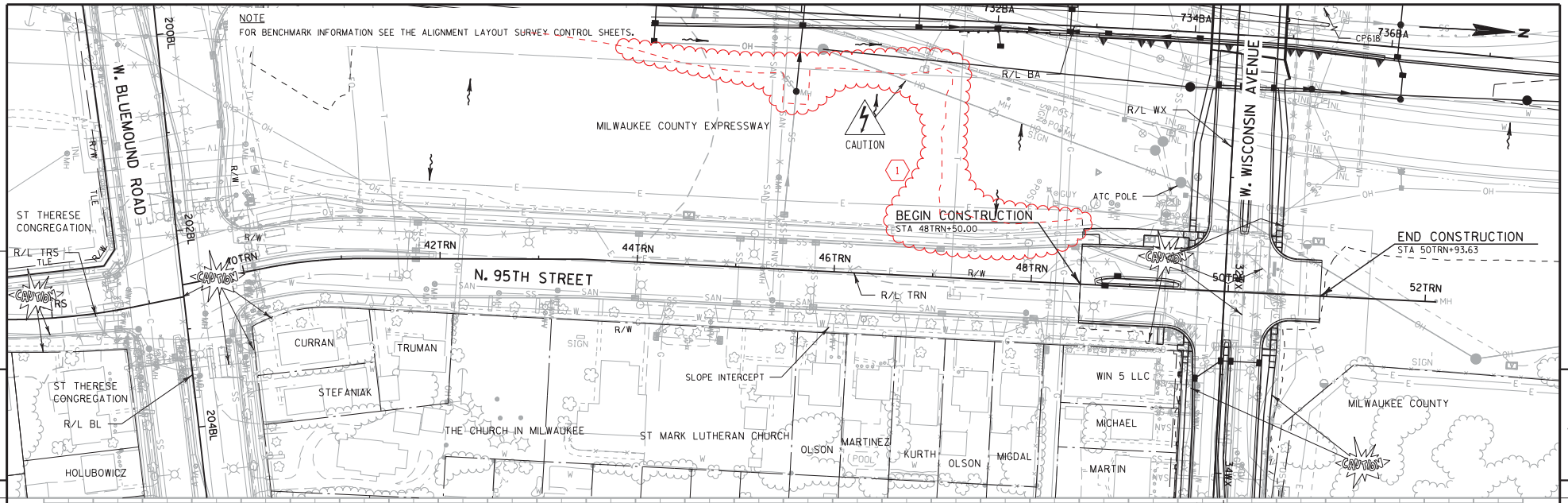


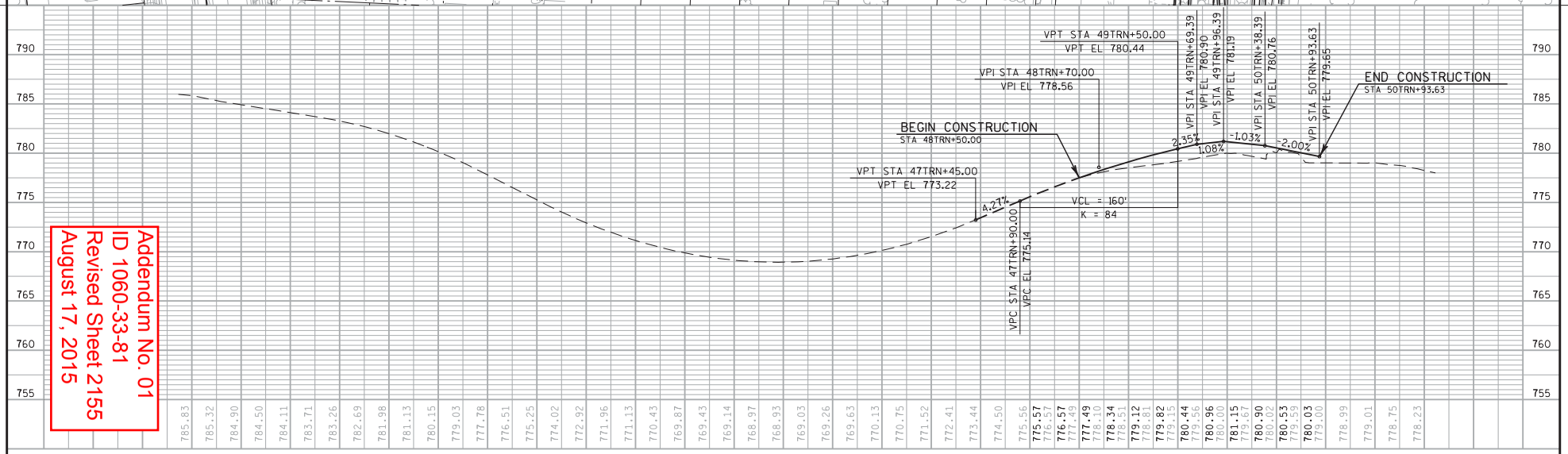




Addendum No. 01
ID 1060-33-81
Revised Sheet 2154
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | PLAN & PROFILE: N. 97TH STREET | SHEET 2154 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\050408_pp.dgn PLOT DATE : 12-AUG-2015 18:28 PLOT BY : MSCD1S PLOT NAME : 050408_pp PLOT SCALE : 100:1




Addendum No. 01
ID 1060-33-81
Revised Sheet 2155
August 17, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | PLAN & PROFILE: N. 95TH STREET | SHEET 2155 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\050409_pp.dgn PLOT DATE : 12-AUG-2015 18:29 PLOT BY : MSCD1S PLOT NAME : 050409_pp PLOT SCALE : 100:1

WISDOT/CADDS SHEET 40

| STATE PROJECT NUMBER |
|---|
| 1060-33-81 |

## TOTAL ESTIMATED QUANTITIES

SPV.0165.4785 CONCRETE STAINING PREVIOUSLY CONSTRUCTED STRUCTURE

| STRUCTURE NUMBER | PREVIOUS PROJECT ID | QUANTITY (SF) | STRUCTURE NUMBER | PREVIOUS PROJECT ID | QUANTITY (SF) |
|---|---|---|---|---|---|
| B-40-770 | 1060-33-75 | 17,100 | S-40-22 | 1060-33-80 | 1,080 |
| B-40-771 | 1060-33-75 | 22,200 | S-40-27 | 1060-33-80 | 970 |
| B-40-773 | 1060-33-75 | 14,900 | S-40-28 | 1060-33-80 | 410 |
| B-40-774 | 1060-33-75 | 6,400 | S-40-44 | 1060-33-80 | 690 |
| B-40-868 | 1060-33-75 | 8,000 | S-40-47 | 1060-33-80 | 740 |
| R-40-471 | 1060-33-75 | 5,300 | S-40-50 | 1060-33-80 | 950 |
| R-40-472 | 1060-33-75 | 4,600 | S-40-51 | 1060-33-80 | 830 |
| R-40-482 | 1060-33-75 | 10,400 | S-40-65 | 1060-33-80 | 430 |
| R-40-537 | 1060-33-75 | 6,490 | S-40-85 | 1060-33-80 | 460 |
| R-40-538 | 1060-33-75 | 2,500 | S-40-87 | 1060-33-80 | 930 |
| S-40-89 | 1060-33-75 | 1,000 | S-40-116 | 1060-33-80 | 720 |
| S-40-90 | 1060-33-75 | 1,590 | S-40-117 | 1060-33-80 | 530 |
| B-40-769 | 1060-33-77 | 14,650 | S-40-118 | 1060-33-80 | 420 |
| B-40-799 | 1060-33-78 | 2,560 | S-40-119 | 1060-33-80 | 400 |
| B-40-789 | 1060-33-80 | 2,240 | S-40-121 | 1060-33-80 | 490 |
| B-40-791 | 1060-33-80 | 10,160 | S-40-122 | 1060-33-80 | 1,340 |
| B-40-798 | 1060-33-80 | 3,015 | S-40-124 | 1060-33-80 | 390 |
| B-40-849 | 1060-33-80 | 3,165 | S-40-129 | 1060-33-80 | 400 |
| B-40-852 | 1060-33-80 | 15,915 | S-40-130 | 1060-33-80 | 470 |
| B-40-855 | 1060-33-80 | 38,700 | S-40-131 | 1060-33-80 | 400 |
| B-40-857 | 1060-33-80 | 10,150 | S-40-132 | 1060-33-80 | 900 |
| B-40-862 | 1060-33-80 | 18,485 | S-40-134 | 1060-33-80 | 410 |
| B-40-863 | 1060-33-80 | 3,065 | S-40-135 | 1060-33-80 | 650 |
| B-40-864 | 1060-33-80 | 3,245 | S-40-136 | 1060-33-80 | 720 |
| B-40-866 | 1060-33-80 | 11,740 | S-40-137 | 1060-33-80 | 260 |
| B-40-891 | 1060-33-80 | 2,530 | S-40-146 | 1060-33-80 | 420 |
| R-40-501 | 1060-33-80 | 1,390 | S-40-788 | 1060-33-80 | 290 |
| R-40-504 | 1060-33-80 | 44,480 | S-40-789 | 1060-33-80 | 280 |
| R-40-514 | 1060-33-80 | 9,280 | S-40-790 | 1060-33-80 | 290 |
| R-40-522 | 1060-33-80 | 2,230 | B-40-884 | 1090-07-73 | 8,300 |
| R-40-523 | 1060-33-80 | 840 | R-40-580 | 1090-07-73 | 860 |
| R-40-536 | 1060-33-80 | 23,340 | R-40-581 | 1090-07-73 | 800 |
| R-40-546 | 1060-33-80 | 46,870 | B-40-889 | 1100-03-79 | 23,600 |
| R-40-548 | 1060-33-80 | 45,910 | R-40-614 | 1100-03-79 | 870 |
| R-40-551 | 1060-33-80 | 15,030 | R-40-615 | 1100-03-79 | 640 |
| R-40-552 | 1060-33-80 | 34,900 | R-40-616 | 1100-03-79 | 1,060 |
| R-40-556 | 1060-33-80 | 18,360 | R-40-617 | 1100-03-79 | 770 |

(1)

## TOTAL ESTIMATED QUANTITY SUMMARY

| BID ITEM NO. | BID ITEMS | UNIT | TOTAL (1) |
|---|---|---|---|
| SPV.0165.4785 | CONCRETE STAINING PREVIOUSLY CONSTRUCTED STRUCTURE | SF | 536,900 |
| SPV.0165.4786 | CONCRETE STAINING MULTI-COLOR PREVIOUSLY CONSTRUCTED STRUCTURE | SF | 4,380 |

ALL BID ITEMS ARE CATEGORY 4800

## TOTAL ESTIMATED QUANTITIES

SPV.0165.4786 CONCRETE STAINING MULTI-COLOR PREVIOUSLY CONSTRUCTED STRUCTURE

| STRUCTURE NUMBER | PREVIOUS PROJECT ID | QUANTITY (SF) |
|---|---|---|
| R-40-618 | 1060-33-80 | 830 |
| R-40-619 | 1060-33-80 | 1,090 |
| R-40-620 | 1060-33-80 | 1,350 |
| MINOR RETAINING WALL R-1 | 1060-33-80 | 1,110 |

Addendum No. 01
ID 1060-33-81
Revised Sheet 3934
August 17, 2015

## GENERAL NOTES

THESE PLANS ARE FOR THE CONCRETE STAINING OF PREVIOUSLY CONSTRUCTED STRUCTURES.

ALL WORK SHALL BE PERFORMED IN ACCORANCE WITH THE SPECIAL PROVISIONS "CONCRETE STAINING PREVIOUSLY CONSTRUCTED STRUCTURE" AND "CONCRETE STAINING MULTI-COLOR PREVIOUSLY CONSTRUCTED STRUCTURE"

FOR STRUCTURE AESTHETIC SHEETS OF PREVIOUSLY CONSTRUCTED STRUCTURES, SEE "FOR INFORMATION ONLY" PLAN SHEETS LOCATED AFTER THE ROADWAY CROSS SECTION SHEETS.

## LIST OF DRAWINGS

1. CONCRETE STAINING QUANTITIES
2. STAINING EXISTING STRUCTURES (OVERVIEW 1 OF 3)
3. STAINING EXISTING STRUCTURES (OVERVIEW 2 OF 3)
4. STAINING EXISTING STRUCTURES (OVERVIEW 3 OF 3)

William C. Dreher SDR
08/13/15

WISCONSIN
KARL E. SCHMID
E-30812
MILWAUKEE, WI
PROFESSIONAL ENGINEER
8/12/2015

STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:
WILLIAM DREHER (608) 266-8489
CONSULTANT:
KARL SCHMID (414) 272-2426

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| (1) | 8/13/15 | STAINING ADD'L STRUCTURES | KES |

FORWARD 45

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED _____ _____
CHIEF STRUCTURES DESIGN ENGINEER DATE

CONC STAIN EXST STRUCTURES

ZOO INTERCHANGE

| COUNTY | TOWN/CITY/~~VILLAGE~~ |
|---|---|
| MILWAUKEE | WAUWATOSA/WEST ALLIS |

DESIGN SPEC. N/A

| DESIGNED BY | DESIGN CK'D. | DRAWN BY | PLANS CK'D. |
|---|---|---|---|
| KES | EKM | KES | KES |

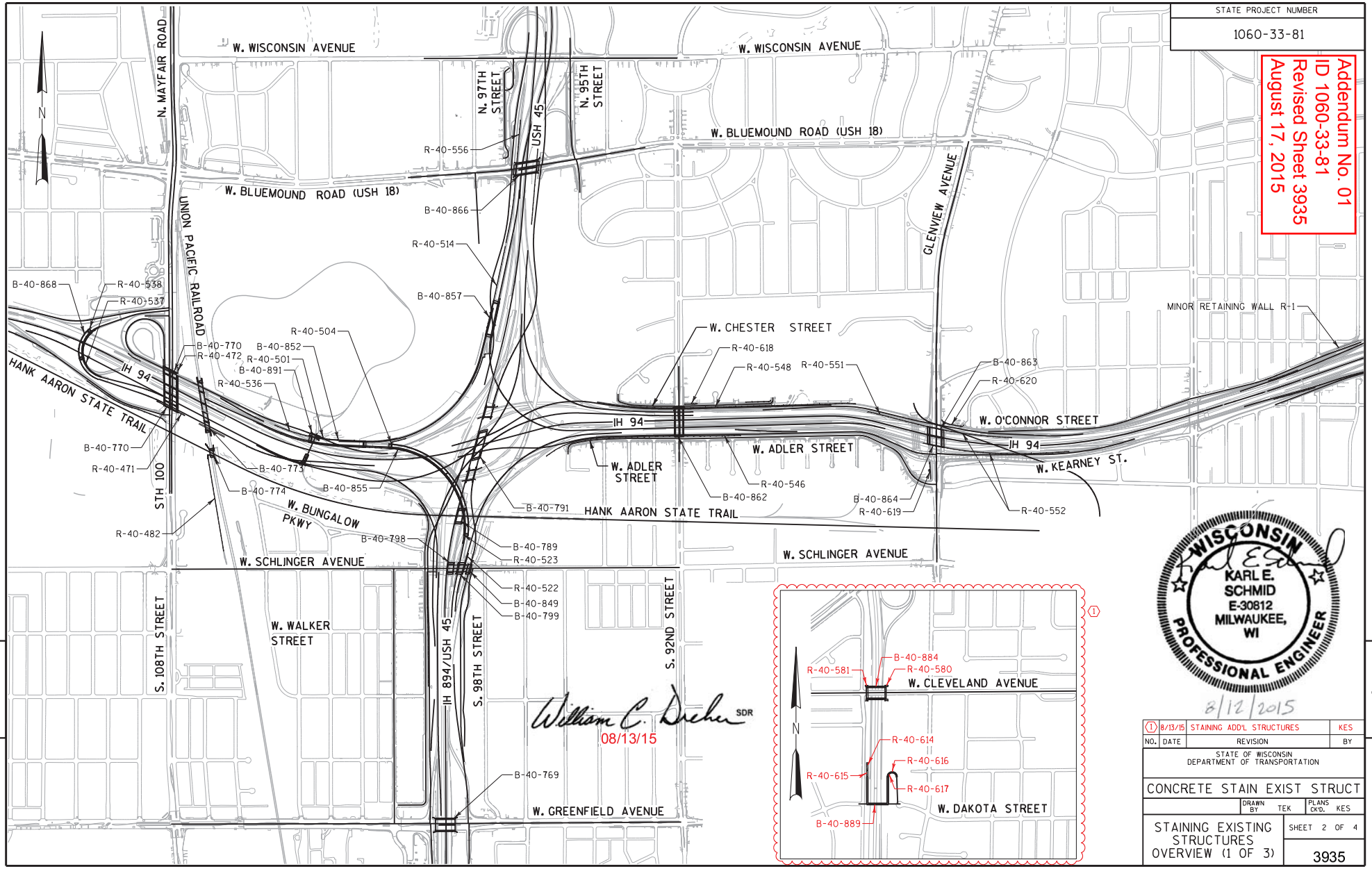
CONCRETE STAINING QUANTITIES

SHEET 1 OF 4

3934

8

8




STATE PROJECT NUMBER

1060-33-81

Addendum No. 01
ID 1060-33-81
Revised Sheet 3935
August 17, 2015

8

8

WISCONSIN
KARL E. SCHMID
E-30812
MILWAUKEE, WI
PROFESSIONAL ENGINEER

8/12/2015

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 1 | 8/13/15 | STAINING ADD'L STRUCTURES | KES |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

CONCRETE STAIN EXIST STRUCT

DRAWN BY TEK | PLANS CK'D. KES

STAINING EXISTING STRUCTURES OVERVIEW (1 OF 3)

SHEET 2 OF 4

3935

William C. Drecher SDR
08/13/15

FILE NAME : W:\Cadd\Final\10603381_Z2\Structs\Concrete Staining\Conc_stain_102_gp.dgn
PLOT DATE : 12-AUG-2015 13:34
PLOT BY : mscke
PLOT NAME : Conc_stain_102_gp
PLOT SCALE : 900:1

(CONTINUED)

**Division 2 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 124+50 | 12450.00 | 50.00 | 0.00 | 0.00 | 610.38 | 0.00 | 1.96 | 0.00 | 1098.00 | 0.00 | 8.70 | 26317.02 | 0.00 | 0.00 | -26308.31 |
| 125+00 | 12500.00 | 50.00 | 1.75 | 0.00 | 641.60 | 0.00 | 1.62 | 0.00 | 1159.24 | 0.00 | 10.32 | 27708.10 | 0.00 | 0.00 | -27697.78 |
| 125+50 | 12550.00 | 50.00 | 1.82 | 0.00 | 633.34 | 0.00 | 3.31 | 0.00 | 1180.50 | 0.00 | 13.63 | 29124.70 | 0.00 | 0.00 | -29111.07 |
| 126+00 | 12600.00 | 50.00 | 0.00 | 0.00 | 609.63 | 0.00 | 1.69 | 0.00 | 1150.90 | 0.00 | 15.31 | 30505.78 | 0.00 | 0.00 | -30490.47 |
| 126+50 | 12650.00 | 50.00 | 0.00 | 0.00 | 605.92 | 0.00 | 0.00 | 0.00 | 1125.51 | 0.00 | 15.31 | 31856.39 | 0.00 | 0.00 | -31841.08 |
| 126+86 | 12685.83 | 35.83 | 0.00 | 0.00 | 648.57 | 0.00 | 0.00 | 0.00 | 832.38 | 0.00 | 15.31 | 32855.25 | 0.00 | 0.00 | -32839.93 |
| 128+66 | 12865.50 | 179.67 | 1.24 | 0.00 | 906.30 | 0.00 | 4.13 | 0.00 | 5173.40 | 0.00 | 19.44 | 39063.32 | 0.00 | 0.00 | -39043.88 |
| 129+11 BK | 12910.83 | 45.33 | 0.00 | 0.00 | 0.00 | 1.00 | 1.04 | 0.00 | 760.79 | 0.00 | 20.48 | 39976.27 | 0.00 | 0.00 | -39955.79 |
| 130+07 AH | 13007.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 132+30 | 13230.43 | 223.39 | 0.00 | 0.00 | 1439.17 | 0.00 | 0.00 | 0.00 | 5953.63 | 0.00 | 0.00 | 7144.36 | 0.00 | 0.00 | -7144.36 |
| 132+50 | 13250.00 | 19.57 | 0.00 | 0.00 | 1657.93 | 0.00 | 0.00 | 0.00 | 1122.41 | 0.00 | 0.00 | 8491.25 | 0.00 | 0.00 | -8491.25 |
| 133+00 | 13300.00 | 50.00 | 0.00 | 0.00 | 1435.31 | 0.00 | 0.00 | 0.00 | 2864.11 | 0.00 | 0.00 | 11928.19 | 0.00 | 0.00 | -11928.19 |
| 133+50 | 13350.00 | 50.00 | 0.00 | 0.00 | 955.92 | 0.00 | 0.00 | 0.00 | 2214.10 | 0.00 | 0.00 | 14585.11 | 0.00 | 0.00 | -14585.11 |
| 133+89 | 13388.57 | 38.57 | 32.11 | 0.00 | 914.54 | 0.00 | 22.93 | 0.00 | 1335.99 | 0.00 | 22.93 | 16188.30 | 0.00 | 0.00 | -16165.37 |
| 133+89 | 13388.57 | 0.00 | 0.00 | 0.00 | 530.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 22.93 | 16188.30 | 0.00 | 0.00 | -16165.37 |
| 134+00 | 13400.00 | 11.43 | 0.00 | 0.00 | 526.33 | 0.00 | 0.00 | 0.00 | 223.60 | 0.00 | 22.93 | 16456.62 | 0.00 | 0.00 | -16433.69 |
| 134+50 | 13450.00 | 50.00 | 0.00 | 0.00 | 506.81 | 0.00 | 0.00 | 0.00 | 956.61 | 0.00 | 22.93 | 17604.56 | 0.00 | 0.00 | -17581.62 |
| 135+00 | 13500.00 | 50.00 | 0.00 | 0.00 | 479.23 | 0.00 | 0.00 | 0.00 | 913.00 | 0.00 | 22.93 | 18700.16 | 0.00 | 0.00 | -18677.22 |
| 135+50 | 13550.00 | 50.00 | 0.00 | 0.00 | 435.72 | 0.00 | 0.00 | 0.00 | 847.18 | 0.00 | 22.93 | 19716.77 | 0.00 | 0.00 | -19693.83 |
| 136+00 | 13600.00 | 50.00 | 0.00 | 0.00 | 351.70 | 0.00 | 0.00 | 0.00 | 729.09 | 0.00 | 22.93 | 20591.68 | 0.00 | 0.00 | -20568.75 |
| 136+50 | 13650.00 | 50.00 | 0.00 | 0.00 | 200.03 | 0.00 | 0.00 | 0.00 | 510.86 | 0.00 | 22.93 | 21204.71 | 0.00 | 0.00 | -21181.78 |
| 136+53 | 13652.65 | 2.65 | 0.00 | 0.00 | 201.54 | 0.00 | 0.00 | 0.00 | 19.71 | 0.00 | 22.93 | 21228.36 | 0.00 | 0.00 | -21205.43 |
| 137+00 | 13700.00 | 47.35 | 0.10 | 0.00 | 200.26 | 0.00 | 0.09 | 0.00 | 352.32 | 0.00 | 23.02 | 21651.14 | 0.00 | 0.00 | -21628.12 |
| 137+50 | 13750.00 | 50.00 | 0.00 | 0.00 | 185.24 | 0.00 | 0.09 | 0.00 | 356.94 | 0.00 | 23.12 | 22079.48 | 0.00 | 0.00 | -22056.36 |
| 138+00 | 13800.00 | 50.00 | 0.00 | 0.00 | 132.31 | 0.00 | 0.00 | 0.00 | 294.03 | 0.00 | 23.12 | 22432.31 | 0.00 | 0.00 | -22409.20 |
| 138+50 | 13850.00 | 50.00 | 15.39 | 0.00 | 115.13 | 0.00 | 14.25 | 0.00 | 229.11 | 0.00 | 37.37 | 22707.24 | 0.00 | 0.00 | -22669.88 |

1

Addendum No. 01
ID 1060-33-81
Revised Sheet 4642
August 17, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 2 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 137+50 | 13750.00 | 50.00 | 0.00 | 0.00 | 185.24 | 0.00 | 0.09 | 0.00 | 356.94 | 0.00 | 23.12 | 22079.48 | 0.00 | 0.00 | -22056.36 |
| 138+00 | 13800.00 | 50.00 | 0.00 | 0.00 | 132.31 | 0.00 | 0.00 | 0.00 | 294.03 | 0.00 | 23.12 | 22432.31 | 0.00 | 0.00 | -22409.20 |
| 138+50 | 13850.00 | 50.00 | 15.39 | 0.00 | 115.13 | 0.00 | 14.25 | 0.00 | 229.11 | 0.00 | 37.37 | 22707.24 | 0.00 | 0.00 | -22669.88 |
| 139+00 | 13900.00 | 50.00 | 15.66 | 0.00 | 101.38 | 0.00 | 28.75 | 0.00 | 200.47 | 0.00 | 66.12 | 22947.81 | 0.00 | 0.00 | -22881.70 |
| 139+50 | 13950.00 | 50.00 | 7.11 | 0.00 | 76.37 | 0.00 | 21.08 | 0.00 | 164.58 | 0.00 | 87.20 | 23145.31 | 0.00 | 0.00 | -23058.11 |
| 140+00 | 14000.00 | 50.00 | 29.28 | 0.00 | 50.86 | 0.00 | 33.69 | 0.00 | 117.81 | 0.00 | 120.89 | 23286.68 | 0.00 | 0.00 | -23165.78 |
| 140+50 | 14050.00 | 50.00 | 55.29 | 0.00 | 63.30 | 0.00 | 78.31 | 0.00 | 105.70 | 0.00 | 199.20 | 23413.52 | 0.00 | 0.00 | -23214.32 |
| 140+93 | 14092.87 | 42.87 | 61.90 | 0.00 | 3.35 | 0.00 | 93.04 | 0.00 | 52.91 | 0.00 | 292.23 | 23477.02 | 0.00 | 0.00 | -23184.78 |
| 140+93 | 14092.87 | 0.00 | 11.01 | 0.00 | 3.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 292.23 | 23477.02 | 0.00 | 0.00 | -23184.78 |
| 141+00 | 14100.00 | 7.13 | 9.14 | 0.00 | 4.30 | 0.00 | 2.66 | 0.00 | 1.01 | 0.00 | 294.89 | 23478.23 | 0.00 | 0.00 | -23183.34 |
| 141+50 | 14150.00 | 50.00 | 3.18 | 0.00 | 13.31 | 0.00 | 11.41 | 0.00 | 16.31 | 0.00 | 306.30 | 23497.80 | 0.00 | 0.00 | -23191.50 |
| 142+00 | 14200.00 | 50.00 | 0.05 | 0.00 | 18.94 | 0.00 | 2.99 | 0.00 | 29.86 | 0.00 | 309.29 | 23533.63 | 0.00 | 0.00 | -23224.34 |
| 142+50 | 14250.00 | 50.00 | 0.00 | 0.00 | 21.10 | 0.00 | 0.05 | 0.00 | 37.07 | 0.00 | 309.34 | 23578.12 | 0.00 | 0.00 | -23268.78 |
| 143+00 BK | 14300.00 | 50.00 | 0.00 | 0.00 | 11.15 | 0.00 | 0.00 | 0.00 | 29.86 | 0.00 | 309.34 | 23613.95 | 0.00 | 0.00 | -23304.61 |
| | | | | | Column totals | | 2113.82 | 0.00 | 59262.30 | 0.00 | | | | | |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4643
August 17, 2015



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4643 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew19 PLOT SCALE : 1:1

(CONTINUED)

**Division 2 RAMP WS**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 555+46 | 55546.04 | 0.00 | 2.43 | 0.00 | 35.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 17.41 | 1695.61 | 0.00 | 0.00 | -1678.20 |
| 555+50 | 55550.00 | 3.96 | 2.22 | 0.00 | 36.15 | 0.00 | 0.34 | 0.00 | 5.27 | 0.00 | 17.75 | 1701.93 | 0.00 | 0.00 | -1684.19 |
| 556+00 | 55600.00 | 50.00 | 1.66 | 0.00 | 38.01 | 0.00 | 3.59 | 0.00 | 68.67 | 0.00 | 21.34 | 1784.33 | 0.00 | 0.00 | -1762.99 |
| 556+10 | 55610.25 | 10.25 | 1.68 | 0.00 | 37.82 | 0.00 | 0.63 | 0.00 | 14.39 | 0.00 | 21.98 | 1801.61 | 0.00 | 0.00 | -1779.63 |
| 556+10 | 55610.25 | 0.00 | 0.04 | 0.00 | 24.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 21.98 | 1801.61 | 0.00 | 0.00 | -1779.63 |
| 556+50 | 55650.00 | 39.75 | 1.74 | 0.00 | 37.02 | 0.00 | 1.31 | 0.00 | 45.34 | 0.00 | 23.29 | 1856.02 | 0.00 | 0.00 | -1832.73 |
| 557+00 | 55700.00 | 50.00 | 1.88 | 0.00 | 36.08 | 0.00 | 3.35 | 0.00 | 67.69 | 0.00 | 26.64 | 1937.24 | 0.00 | 0.00 | -1910.60 |
| 557+50 | 55750.00 | 50.00 | 2.05 | 0.00 | 35.10 | 0.00 | 3.64 | 0.00 | 65.91 | 0.00 | 30.28 | 2016.33 | 0.00 | 0.00 | -1986.05 |
| 558+00 | 55800.00 | 50.00 | 2.24 | 0.00 | 34.11 | 0.00 | 3.97 | 0.00 | 64.08 | 0.00 | 34.25 | 2093.23 | 0.00 | 0.00 | -2058.98 |
| 558+50 | 55850.00 | 50.00 | 2.45 | 0.00 | 33.15 | 0.00 | 4.34 | 0.00 | 62.28 | 0.00 | 38.59 | 2167.96 | 0.00 | 0.00 | -2129.37 |
| 558+60 | 55860.00 | 10.00 | 0.37 | 0.00 | 21.09 | 0.00 | 0.52 | 0.00 | 10.04 | 0.00 | 39.11 | 2180.02 | 0.00 | 0.00 | -2140.90 |
| 558+60 | 55860.00 | 0.00 | 2.48 | 0.00 | 33.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 39.11 | 2180.02 | 0.00 | 0.00 | -2140.90 |
| 559+00 | 55900.00 | 40.00 | 0.00 | 0.00 | 10.84 | 0.00 | 1.84 | 0.00 | 32.48 | 0.00 | 40.95 | 2219.00 | 0.00 | 0.00 | -2178.04 |
| 559+50 | 55950.00 | 50.00 | 0.00 | 0.00 | 10.84 | 0.00 | 0.00 | 0.00 | 20.07 | 0.00 | 40.95 | 2243.08 | 0.00 | 0.00 | -2202.13 |
| 560+00 | 56000.00 | 50.00 | 0.00 | 0.00 | 10.03 | 0.00 | 0.00 | 0.00 | 19.32 | 0.00 | 40.95 | 2266.27 | 0.00 | 0.00 | -2225.32 |
| 560+45 | 56044.51 | 44.51 | 0.00 | 0.00 | 10.68 | 0.00 | 0.00 | 0.00 | 17.07 | 0.00 | 40.95 | 2286.76 | 0.00 | 0.00 | -2245.81 |
| 560+45 | 56044.51 | 0.00 | 0.00 | 0.00 | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 40.95 | 2286.76 | 0.00 | 0.00 | -2245.81 |
| 560+50 | 56050.00 | 5.49 | 0.00 | 0.00 | 9.77 | 0.00 | 0.00 | 0.00 | 1.02 | 0.00 | 40.95 | 2287.98 | 0.00 | 0.00 | -2247.03 |
| 561+00 | 56100.00 | 50.00 | 0.00 | 0.00 | 9.44 | 0.00 | 0.00 | 0.00 | 17.79 | 0.00 | 40.95 | 2309.32 | 0.00 | 0.00 | -2268.37 |
| 561+50 | 56150.00 | 50.00 | 0.00 | 0.00 | 8.81 | 0.00 | 0.00 | 0.00 | 16.90 | 0.00 | 40.95 | 2329.60 | 0.00 | 0.00 | -2288.65 |
| 562+00 | 56200.00 | 50.00 | 0.84 | 0.00 | 0.20 | 0.00 | 0.78 | 0.00 | 8.34 | 0.00 | 41.73 | 2339.61 | 0.00 | 0.00 | -2297.88 |
| 562+31 | 56231.00 | 31.00 | 0.71 | 0.00 | 15.07 | 0.00 | 0.89 | 0.00 | 8.77 | 0.00 | 42.62 | 2350.13 | 0.00 | 0.00 | -2307.51 |
| 562+31 | 56231.00 | 0.00 | 0.01 | 0.00 | 4.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 42.62 | 2350.13 | 0.00 | 0.00 | -2307.51 |
| 562+50 | 56250.00 | 19.00 | 0.09 | 0.00 | 10.46 | 0.00 | 0.04 | 0.00 | 5.29 | 0.00 | 42.65 | 2356.48 | 0.00 | 0.00 | -2313.82 |
| 563+00 | 56300.00 | 50.00 | 0.39 | 0.00 | 56.19 | 0.00 | 0.44 | 0.00 | 61.71 | 0.00 | 43.10 | 2430.53 | 0.00 | 0.00 | -2387.43 |
| 563+50 | 56350.00 | 50.00 | 0.64 | 0.00 | 96.19 | 0.00 | 0.95 | 0.00 | 141.09 | 0.00 | 44.05 | 2599.84 | 0.00 | 0.00 | -2555.79 |

1

Addendum No. 01
ID 1060-33-81
Revised Sheet 4648
August 17, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4648 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew24 PLOT SCALE : 1:1

(CONTINUED)

**Division 2 RAMP WS**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 564+00 | 56400.00 | 50.00 | 0.87 | 0.00 | 139.77 | 0.00 | 1.40 | 0.00 | 218.48 | 0.00 | 45.45 | 2862.02 | 0.00 | 0.00 | -2816.57 |
| 564+50 | 56450.00 | 50.00 | 1.15 | 0.00 | 193.92 | 0.00 | 1.87 | 0.00 | 308.97 | 0.00 | 47.32 | 3232.79 | 0.00 | 0.00 | -3185.47 |
| 565+00 | 56500.00 | 50.00 | 1.63 | 0.00 | 250.05 | 0.00 | 2.57 | 0.00 | 411.08 | 0.00 | 49.89 | 3726.09 | 0.00 | 0.00 | -3676.19 |
| 565+50 | 56550.00 | 50.00 | 0.85 | 0.00 | 313.12 | 0.00 | 2.30 | 0.00 | 521.45 | 0.00 | 52.19 | 4351.83 | 0.00 | 0.00 | -4299.64 |
| 566+00 | 56600.00 | 50.00 | 1.18 | 0.00 | 353.82 | 0.00 | 1.88 | 0.00 | 617.54 | 0.00 | 54.07 | 5092.88 | 0.00 | 0.00 | -5038.81 |
| 566+11 | 56610.98 | 10.98 | 1.45 | 0.00 | 360.53 | 0.00 | 0.53 | 0.00 | 145.25 | 0.00 | 54.61 | 5267.18 | 0.00 | 0.00 | -5212.57 |
| 566+11 | 56610.98 | 0.00 | 1.45 | 0.00 | 122.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 54.61 | 5267.18 | 0.00 | 0.00 | -5212.57 |
| 566+50 | 56650.00 | 39.02 | 1.20 | 0.00 | 24.02 | 0.00 | 1.91 | 0.00 | 106.19 | 0.00 | 56.52 | 5394.61 | 0.00 | 0.00 | -5338.09 |
| 566+76 | 56675.98 | 25.98 | 1.25 | 0.00 | 44.11 | 0.00 | 1.18 | 0.00 | 32.78 | 0.00 | 57.70 | 5433.94 | 0.00 | 0.00 | -5376.24 |
| 566+98 BK | 56697.73 | 21.75 | 2.01 | 0.00 | -22.60 | 0.00 | 1.31 | 0.00 | 8.66 | 0.00 | 59.01 | 5444.34 | 0.00 | 0.00 | -5385.33 |
| 588+68 AH | 58868.46 | 0.00 | 0.00 | 0.00 | 1.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 589+00 | 58900.00 | 31.54 | 0.00 | 0.00 | 62.75 | 0.00 | 0.00 | 0.00 | 37.74 | 0.00 | 0.00 | 45.28 | 0.00 | 0.00 | -45.28 |
| 589+07 | 58906.53 | 6.53 | 0.00 | 0.00 | 85.45 | 0.00 | 0.00 | 0.00 | 17.92 | 0.00 | 0.00 | 66.79 | 0.00 | 0.00 | -66.79 |
| 589+50 | 58950.00 | 43.47 | 0.00 | 0.00 | 287.10 | 0.00 | 0.00 | 0.00 | 299.90 | 0.00 | 0.00 | 426.67 | 0.00 | 0.00 | -426.67 |
| 590+00 | 59000.00 | 50.00 | 0.00 | 0.00 | 339.89 | 0.00 | 0.00 | 0.00 | 580.55 | 0.00 | 0.00 | 1123.33 | 0.00 | 0.00 | -1123.33 |
| 590+50 | 59050.00 | 50.00 | 0.00 | 0.00 | 303.72 | 0.00 | 0.00 | 0.00 | 595.94 | 0.00 | 0.00 | 1838.45 | 0.00 | 0.00 | -1838.45 |
| 591+00 | 59100.00 | 50.00 | 0.00 | 0.00 | 263.39 | 0.00 | 0.00 | 0.00 | 525.10 | 0.00 | 0.00 | 2468.57 | 0.00 | 0.00 | -2468.57 |
| 591+27 | 59126.91 | 26.91 | 0.00 | 0.00 | 150.50 | 0.00 | 0.00 | 0.00 | 206.26 | 0.00 | 0.00 | 2716.08 | 0.00 | 0.00 | -2716.08 |
| 591+29 | 59128.55 | 1.64 | 0.00 | 0.00 | 167.65 | 0.00 | 0.00 | 0.00 | 9.66 | 0.00 | 0.00 | 2727.67 | 0.00 | 0.00 | -2727.67 |
| 591+47 BK | 59146.83 | 18.28 | 0.00 | 0.00 | 560.90 | 0.00 | 0.00 | 0.00 | 246.63 | 0.00 | 0.00 | 3023.63 | 0.00 | 0.00 | -3023.63 |
| | | Column totals | | | | | 1470.94 | 0.00 | 15680.68 | 0.00 | | | | | |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4649
August 17, 2015



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4649 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew25 PLOT SCALE : 1:1

**Division 2 RAMP LA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 703+32 AH | 70331.94 | 0.00 | 172.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 703+50 | 70350.00 | 18.06 | 175.63 | 0.00 | 1.97 | 0.00 | 116.30 | 0.00 | 0.66 | 0.00 | 116.30 | 0.79 | 0.00 | 0.00 | 115.51 |
| 704+00 | 70400.00 | 50.00 | 84.27 | 0.00 | 45.78 | 0.00 | 240.65 | 0.00 | 44.21 | 0.00 | 356.95 | 53.85 | 0.00 | 0.00 | 303.10 |
| 704+50 | 70450.00 | 50.00 | 53.22 | 0.00 | 53.25 | 0.00 | 127.31 | 0.00 | 91.69 | 0.00 | 484.25 | 163.88 | 0.00 | 0.00 | 320.37 |
| 705+00 | 70500.00 | 50.00 | 13.98 | 0.00 | 93.42 | 0.00 | 62.22 | 0.00 | 135.81 | 0.00 | 546.48 | 326.85 | 0.00 | 0.00 | 219.63 |
| 705+50 | 70550.00 | 50.00 | 5.62 | 0.00 | 175.49 | 0.00 | 18.15 | 0.00 | 248.99 | 0.00 | 564.62 | 625.64 | 0.00 | 0.00 | -61.01 |
| 706+00 | 70600.00 | 50.00 | 4.97 | 0.00 | 254.30 | 0.00 | 9.81 | 0.00 | 397.95 | 0.00 | 574.43 | 1103.18 | 0.00 | 0.00 | -528.75 |
| 706+50 | 70650.00 | 50.00 | 1.64 | 0.00 | 322.69 | 0.00 | 6.12 | 0.00 | 534.25 | 0.00 | 580.55 | 1744.28 | 0.00 | 0.00 | -1163.73 |
| 707+00 | 70700.00 | 50.00 | 2.62 | 0.00 | 547.34 | 0.00 | 3.94 | 0.00 | 805.58 | 0.00 | 584.49 | 2710.98 | 0.00 | 0.00 | -2126.49 |
| 707+50 | 70750.00 | 50.00 | 3.47 | 0.00 | 479.43 | 0.00 | 5.64 | 0.00 | 950.71 | 0.00 | 590.13 | 3851.84 | 0.00 | 0.00 | -3261.70 |
| 708+00 | 70800.00 | 50.00 | 3.04 | 0.00 | 350.79 | 0.00 | 6.03 | 0.00 | 768.72 | 0.00 | 596.16 | 4774.30 | 0.00 | 0.00 | -4178.14 |
| 708+50 | 70850.00 | 50.00 | 0.66 | 0.00 | 210.02 | 0.00 | 3.43 | 0.00 | 519.27 | 0.00 | 599.59 | 5397.42 | 0.00 | 0.00 | -4797.84 |
| 709+00 | 70900.00 | 50.00 | 1.03 | 0.00 | 134.08 | 0.00 | 1.56 | 0.00 | 318.61 | 0.00 | 601.15 | 5779.76 | 0.00 | 0.00 | -5178.61 |
| 709+50 | 70950.00 | 50.00 | 19.61 | 0.00 | 42.95 | 0.00 | 19.11 | 0.00 | 163.92 | 0.00 | 620.26 | 5976.46 | 0.00 | 0.00 | -5356.19 |
| 710+00 | 71000.00 | 50.00 | 101.09 | 0.00 | 29.32 | 0.00 | 111.76 | 0.00 | 66.92 | 0.00 | 732.02 | 6056.76 | 0.00 | 0.00 | -5324.74 |
| 710+50 | 71050.00 | 50.00 | 255.67 | 0.00 | 27.35 | 0.00 | 330.33 | 0.00 | 52.47 | 0.00 | 1062.36 | 6119.72 | 0.00 | 0.00 | -5057.37 |
| 711+00 | 71100.00 | 50.00 | 296.85 | 0.00 | 19.25 | 0.00 | 511.59 | 0.00 | 43.15 | 0.00 | 1573.95 | 6171.50 | 0.00 | 0.00 | -4597.55 |
| 711+50 | 71150.00 | 50.00 | 338.65 | 0.00 | 19.07 | 0.00 | 588.43 | 0.00 | 35.48 | 0.00 | 2162.37 | 6214.08 | 0.00 | 0.00 | -4051.71 |
| 712+00 | 71200.00 | 50.00 | 394.73 | 0.00 | 13.00 | 0.00 | 679.06 | 0.00 | 29.69 | 0.00 | 2841.43 | 6249.71 | 0.00 | 0.00 | -3408.28 |
| 712+50 | 71250.00 | 50.00 | 429.47 | 0.00 | 5.84 | 0.00 | 763.15 | 0.00 | 17.44 | 0.00 | 3604.58 | 6270.65 | 0.00 | 0.00 | -2666.07 |
| 713+00 | 71300.00 | 50.00 | 504.28 | 0.00 | 2.58 | 0.00 | 864.58 | 0.00 | 7.80 | 0.00 | 4469.16 | 6280.00 | 0.00 | 0.00 | -1810.84 |
| 713+50 | 71350.00 | 50.00 | 497.65 | 0.00 | 0.00 | 0.00 | 927.71 | 0.00 | 2.39 | 0.00 | 5396.87 | 6282.87 | 0.00 | 0.00 | -885.99 |
| 714+00 | 71400.00 | 50.00 | 475.87 | 0.00 | 0.23 | 0.00 | 901.41 | 0.00 | 0.21 | 0.00 | 6298.28 | 6283.12 | 0.00 | 0.00 | 15.16 |
| 714+45 | 71445.00 | 45.00 | 422.01 | 0.00 | 0.16 | 0.00 | 748.23 | 0.00 | 0.33 | 0.00 | 7046.51 | 6283.51 | 0.00 | 0.00 | 763.00 |

1

Addendum No. 01
ID 1060-33-81
Revised Sheet 4653
August 17, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4653 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew29 PLOT SCALE : 1:1

(CONTINUED)

**Division 2 RAMP LA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 714+45 | 71445.00 | 0.00 | 469.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7046.51 | 6283.51 | 0.00 | 0.00 | 763.00 |
| 714+50 | 71450.00 | 5.00 | 463.75 | 0.00 | 0.00 | 0.00 | 86.40 | 0.00 | 0.00 | 0.00 | 7132.92 | 6283.51 | 0.00 | 0.00 | 849.40 |
| 715+00 | 71500.00 | 50.00 | 419.76 | 0.00 | 0.00 | 0.00 | 818.06 | 0.00 | 0.00 | 0.00 | 7950.98 | 6283.51 | 0.00 | 0.00 | 1667.47 |
| 715+50 | 71550.00 | 50.00 | 300.85 | 0.00 | 0.00 | 0.00 | 667.23 | 0.00 | 0.00 | 0.00 | 8618.21 | 6283.51 | 0.00 | 0.00 | 2334.70 |
| 716+00 | 71600.00 | 50.00 | 203.08 | 0.00 | 0.00 | 0.00 | 466.60 | 0.00 | 0.00 | 0.00 | 9084.82 | 6283.51 | 0.00 | 0.00 | 2801.30 |
| 716+50 | 71650.00 | 50.00 | 127.78 | 0.00 | 0.00 | 0.00 | 306.35 | 0.00 | 0.00 | 0.00 | 9391.17 | 6283.51 | 0.00 | 0.00 | 3107.65 |
| 717+00 | 71700.00 | 50.00 | 63.84 | 0.00 | 2.05 | 0.00 | 177.43 | 0.00 | 1.90 | 0.00 | 9568.59 | 6285.79 | 0.00 | 0.00 | 3282.80 |
| 717+50 | 71750.00 | 50.00 | 12.07 | 0.00 | 22.78 | 0.00 | 70.29 | 0.00 | 22.99 | 0.00 | 9638.88 | 6313.38 | 0.00 | 0.00 | 3325.50 |
| 717+90 BK | 71790.34 | 40.34 | 0.00 | 0.00 | 70.63 | 0.00 | 9.02 | 0.00 | 69.78 | 0.00 | 9647.90 | 6397.12 | 0.00 | 0.00 | 3250.78 |
| | | | | | | Column totals | 9647.90 | 0.00 | 5330.93 | 0.00 | | | | | |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4654
August 17, 2015



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4654 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew30 PLOT SCALE : 1:1

(CONTINUED)

**Division 2 RAMP SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 557+00 | 55700.00 | 50.00 | 22.13 | 0.00 | 33.70 | 0.00 | 41.30 | 0.00 | 61.64 | 0.00 | 388.09 | 1943.50 | 0.00 | 0.00 | -1555.41 |
| 557+50 | 55750.00 | 50.00 | 22.34 | 0.00 | 34.48 | 0.00 | 41.18 | 0.00 | 63.13 | 0.00 | 429.26 | 2019.25 | 0.00 | 0.00 | -1589.99 |
| 558+00 | 55800.00 | 50.00 | 0.18 | 0.00 | 54.57 | 0.00 | 20.85 | 0.00 | 82.45 | 0.00 | 450.11 | 2118.20 | 0.00 | 0.00 | -1668.08 |
| 558+50 | 55850.00 | 50.00 | 0.28 | 0.00 | 31.79 | 0.00 | 0.43 | 0.00 | 79.96 | 0.00 | 450.54 | 2214.15 | 0.00 | 0.00 | -1763.61 |
| 559+00 | 55900.00 | 50.00 | 0.09 | 0.00 | 31.74 | 0.00 | 0.34 | 0.00 | 58.82 | 0.00 | 450.88 | 2284.74 | 0.00 | 0.00 | -1833.86 |
| 559+50 | 55950.00 | 50.00 | 0.09 | 0.00 | 26.34 | 0.00 | 0.17 | 0.00 | 53.78 | 0.00 | 451.05 | 2349.28 | 0.00 | 0.00 | -1898.23 |
| 560+00 | 56000.00 | 50.00 | 0.10 | 0.00 | 24.42 | 0.00 | 0.18 | 0.00 | 47.00 | 0.00 | 451.23 | 2405.68 | 0.00 | 0.00 | -1954.45 |
| 560+50 | 56050.00 | 50.00 | 0.10 | 0.00 | 22.73 | 0.00 | 0.19 | 0.00 | 43.66 | 0.00 | 451.41 | 2458.07 | 0.00 | 0.00 | -2006.66 |
| 561+00 | 56100.00 | 50.00 | 3.12 | 0.00 | 22.76 | 0.00 | 2.98 | 0.00 | 42.12 | 0.00 | 454.39 | 2508.61 | 0.00 | 0.00 | -2054.22 |
| 561+50 | 56150.00 | 50.00 | 5.68 | 0.00 | 18.90 | 0.00 | 8.15 | 0.00 | 38.57 | 0.00 | 462.54 | 2554.90 | 0.00 | 0.00 | -2092.36 |
| 562+00 | 56200.00 | 50.00 | 0.16 | 0.00 | 85.24 | 0.00 | 5.41 | 0.00 | 96.43 | 0.00 | 467.95 | 2670.61 | 0.00 | 0.00 | -2202.66 |
| 562+50 | 56250.00 | 50.00 | 0.10 | 0.00 | 34.15 | 0.00 | 0.24 | 0.00 | 110.55 | 0.00 | 468.19 | 2803.27 | 0.00 | 0.00 | -2335.08 |
| 563+00 | 56300.00 | 50.00 | 0.00 | 0.00 | 33.58 | 0.00 | 0.09 | 0.00 | 62.71 | 0.00 | 468.28 | 2878.52 | 0.00 | 0.00 | -2410.24 |
| 563+50 | 56350.00 | 50.00 | 0.10 | 0.00 | 36.06 | 0.00 | 0.09 | 0.00 | 64.48 | 0.00 | 468.37 | 2955.90 | 0.00 | 0.00 | -2487.53 |
| 564+00 | 56400.00 | 50.00 | 0.10 | 0.00 | 40.89 | 0.00 | 0.19 | 0.00 | 71.25 | 0.00 | 468.56 | 3041.40 | 0.00 | 0.00 | -2572.84 |
| 564+50 | 56450.00 | 50.00 | 0.11 | 0.00 | 48.78 | 0.00 | 0.19 | 0.00 | 83.03 | 0.00 | 468.75 | 3141.03 | 0.00 | 0.00 | -2672.28 |
| 565+00 | 56500.00 | 50.00 | 0.13 | 0.00 | 8.95 | 0.00 | 0.22 | 0.00 | 53.45 | 0.00 | 468.98 | 3205.18 | 0.00 | 0.00 | -2736.20 |
| 565+50 | 56550.00 | 50.00 | 0.14 | 0.00 | 7.69 | 0.00 | 0.25 | 0.00 | 15.41 | 0.00 | 469.23 | 3223.67 | 0.00 | 0.00 | -2754.44 |
| 566+00 | 56600.00 | 50.00 | 0.14 | 0.00 | 3.78 | 0.00 | 0.26 | 0.00 | 10.62 | 0.00 | 469.48 | 3236.41 | 0.00 | 0.00 | -2766.93 |
| 566+13 BK | 56612.52 | 12.52 | 0.01 | 0.00 | 3.26 | 0.00 | 0.03 | 0.00 | 1.63 | 0.00 | 469.52 | 3238.37 | 0.00 | 0.00 | -2768.85 |
| | | | | | Column totals | | 469.52 | 0.00 | 2698.64 | 0.00 | | | | | |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4661
August 17, 2015



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4661 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew37 PLOT SCALE : 1:1

**Division 2 RAMP SC**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 533+83 AH | 53383.06 | 0.00 | 0 | 0.00 | 389.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 534+00 | 53400.00 | 16.94 | 0 | 0.00 | 376.91 | 0.00 | 0.00 | 0.00 | 240.46 | 0.00 | 0.00 | 288.55 | 0.00 | 0.00 | -288.55 |
| 534+50 | 53450.00 | 50.00 | 0 | 0.00 | 336.1 | 0.00 | 0.00 | 0.00 | 660.19 | 0.00 | 0.00 | 1080.79 | 0.00 | 0.00 | -1080.79 |
| 535+00 | 53500.00 | 50.00 | 0 | 0.00 | 283.3 | 0.00 | 0.00 | 0.00 | 573.52 | 0.00 | 0.00 | 1769.01 | 0.00 | 0.00 | -1769.01 |
| 535+50 | 53550.00 | 50.00 | 0.03 | 0.00 | 170.21 | 0.00 | 0.03 | 0.00 | 419.92 | 0.00 | 0.03 | 2272.91 | 0.00 | 0.00 | -2272.88 |
| 536+00 | 53600.00 | 50.00 | 0 | 0.00 | 40.78 | 0.00 | 0.03 | 0.00 | 195.36 | 0.00 | 0.06 | 2507.34 | 0.00 | 0.00 | -2507.29 |
| 536+40 | 53639.91 | 39.91 | 0 | 0.00 | 12.93 | 0.00 | 0.00 | 0.00 | 39.70 | 0.00 | 0.06 | 2554.98 | 0.00 | 0.00 | -2554.92 |
| 536+40 | 53639.91 | 0.00 | 0 | 0.00 | 19.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 2554.98 | 0.00 | 0.00 | -2554.92 |
| 536+50 | 53650.00 | 10.09 | 0 | 0.00 | 19.96 | 0.00 | 0.00 | 0.00 | 7.36 | 0.00 | 0.06 | 2563.80 | 0.00 | 0.00 | -2563.75 |
| 537+00 | 53700.00 | 50.00 | 0 | 0.00 | 19.82 | 0.00 | 0.00 | 0.00 | 36.83 | 0.00 | 0.06 | 2608.00 | 0.00 | 0.00 | -2607.95 |
| 537+50 | 53750.00 | 50.00 | 0 | 0.00 | 17.62 | 0.00 | 0.00 | 0.00 | 34.67 | 0.00 | 0.06 | 2649.60 | 0.00 | 0.00 | -2649.55 |
| 538+00 BK | 53800.00 | 50.00 | 40.07 | 0.00 | 9.08 | 0.00 | 37.10 | 0.00 | 24.72 | 0.00 | 37.16 | 2679.27 | 0.00 | 0.00 | -2642.11 |
| 538+36 AH | 53835.78 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 538+50 | 53850.00 | 14.22 | 0 | 0.00 | 15.33 | 0.00 | 0.00 | 0.00 | 4.04 | 0.00 | 0.00 | 4.84 | 0.00 | 0.00 | -4.84 |
| 539+00 | 53900.00 | 50.00 | 3.3 | 0.00 | 0.08 | 0.00 | 3.06 | 0.00 | 14.27 | 0.00 | 3.06 | 21.97 | 0.00 | 0.00 | -18.91 |
| 539+06 | 53905.78 | 5.78 | 3.92 | 0.00 | 0.02 | 0.00 | 0.77 | 0.00 | 0.01 | 0.00 | 3.83 | 21.98 | 0.00 | 0.00 | -18.15 |
| 539+06 | 53905.78 | 0.00 | 24.11 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.83 | 21.98 | 0.00 | 0.00 | -18.15 |
| 539+50 | 53950.00 | 44.22 | 19.83 | 0.00 | 0 | 0.00 | 35.98 | 0.00 | 0.00 | 0.00 | 39.81 | 21.98 | 0.00 | 0.00 | 17.83 |
| 540+00 | 54000.00 | 50.00 | 12.23 | 0.00 | 0 | 0.00 | 29.69 | 0.00 | 0.00 | 0.00 | 69.50 | 21.98 | 0.00 | 0.00 | 47.52 |
| 540+50 | 54050.00 | 50.00 | 5.48 | 0.00 | 0 | 0.00 | 16.40 | 0.00 | 0.00 | 0.00 | 85.89 | 21.98 | 0.00 | 0.00 | 63.91 |
| 540+74 BK | 54073.78 | 23.78 | 2.65 | 0.00 | 0.11 | 0.00 | 3.58 | 0.00 | 0.05 | 0.00 | 89.47 | 22.04 | 0.00 | 0.00 | 67.44 |
| | | | | | | Column totals | 126.63 | 0.00 | 2251.09 | 0.00 | | | | | |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4662
August 17, 2015



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4662 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew38 PLOT SCALE : 1:1

**Division 3 RAMP SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 566+13 AH | 56612.52 | 0.00 | 0.01 | 0.00 | 3.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 566+50 | 56650.00 | 37.48 | 0.14 | 0.00 | 0.99 | 0.00 | 0.10 | 0.00 | 2.95 | 0.00 | 0.10 | 3.54 | 0.00 | 0.00 | -3.44 |
| 566+66 | 56665.60 | 15.60 | 0.14 | 0.00 | 1.80 | 0.00 | 0.08 | 0.00 | 0.81 | 0.00 | 0.19 | 4.51 | 0.00 | 0.00 | -4.32 |
| 566+66 | 56665.60 | 0.00 | 172.09 | 0.00 | 14.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.19 | 4.51 | 0.00 | 0.00 | -4.32 |
| 567+00 | 56700.00 | 34.40 | 0.14 | 0.00 | 8.91 | 0.00 | 109.72 | 0.00 | 15.12 | 0.00 | 109.90 | 22.65 | 0.00 | 0.00 | 87.25 |
| 567+50 | 56750.00 | 50.00 | 0.14 | 0.00 | 44.61 | 0.00 | 0.26 | 0.00 | 49.56 | 0.00 | 110.16 | 82.12 | 0.00 | 0.00 | 28.04 |
| 568+00 | 56800.00 | 50.00 | 0.14 | 0.00 | 49.15 | 0.00 | 0.26 | 0.00 | 86.81 | 0.00 | 110.42 | 186.30 | 0.00 | 0.00 | -75.88 |
| 568+50 | 56850.00 | 50.00 | 0.14 | 0.00 | 41.62 | 0.00 | 0.26 | 0.00 | 84.05 | 0.00 | 110.68 | 287.15 | 0.00 | 0.00 | -176.48 |
| 569+00 | 56900.00 | 50.00 | 0.14 | 0.00 | 36.17 | 0.00 | 0.26 | 0.00 | 72.03 | 0.00 | 110.94 | 373.59 | 0.00 | 0.00 | -262.65 |
| 569+50 | 56950.00 | 50.00 | 0.14 | 0.00 | 32.06 | 0.00 | 0.26 | 0.00 | 63.18 | 0.00 | 111.20 | 449.40 | 0.00 | 0.00 | -338.20 |
| 570+00 | 57000.00 | 50.00 | 0.15 | 0.00 | 19.34 | 0.00 | 0.27 | 0.00 | 47.59 | 0.00 | 111.47 | 506.51 | 0.00 | 0.00 | -395.04 |
| 570+50 | 57050.00 | 50.00 | 0.22 | 0.00 | 13.91 | 0.00 | 0.34 | 0.00 | 30.79 | 0.00 | 111.81 | 543.45 | 0.00 | 0.00 | -431.65 |
| 570+86 BK | 57086.00 | 36.00 | 27.68 | 0.00 | 7.47 | 0.00 | 18.60 | 0.00 | 14.25 | 0.00 | 130.41 | 560.56 | 0.00 | 0.00 | -430.15 |
| | | | | | Column totals | | 130.41 | 0.00 | 467.13 | 0.00 | | | | | |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4706
August 17, 2015



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4706 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/11/2015 11:25:36 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew82 PLOT SCALE : 1:1

**Division 3 W. WISCONSIN AVENUE**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged / Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged / Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20+17 AH | 2017.44 | 0.00 | 37.15 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20+50 | 2050.00 | 32.56 | 36.70 | 0.00 | 1.05 | 0.00 | 44.53 | 0.00 | 0.66 | 0.00 | 44.53 | 0.79 | 0.00 | 0.00 | 43.74 |
| 21+00 | 2100.00 | 50.00 | 36.95 | 0.00 | 1.71 | 0.00 | 68.19 | 0.00 | 2.56 | 0.00 | 112.72 | 3.86 | 0.00 | 0.00 | 108.87 |
| 21+13 | 2113.06 | 13.06 | 37.42 | 0.00 | 2.15 | 0.00 | 17.99 | 0.00 | 0.93 | 0.00 | 130.71 | 4.98 | 0.00 | 0.00 | 125.73 |
| 21+50 | 2150.00 | 36.94 | 36.96 | 0.00 | 3.52 | 0.00 | 50.88 | 0.00 | 3.88 | 0.00 | 181.59 | 9.63 | 0.00 | 0.00 | 171.96 |
| 22+00 | 2200.00 | 50.00 | 40.98 | 0.00 | 3.22 | 0.00 | 72.17 | 0.00 | 6.24 | 0.00 | 253.76 | 17.12 | 0.00 | 0.00 | 236.64 |
| 22+50 | 2250.00 | 50.00 | 45.04 | 0.00 | 2.94 | 0.00 | 79.65 | 0.00 | 5.70 | 0.00 | 333.41 | 23.96 | 0.00 | 0.00 | 309.44 |
| 23+00 | 2300.00 | 50.00 | 50.95 | 0.00 | 2.68 | 0.00 | 88.88 | 0.00 | 5.20 | 0.00 | 422.29 | 30.21 | 0.00 | 0.00 | 392.08 |
| 23+50 | 2350.00 | 50.00 | 51.72 | 0.00 | 1.80 | 0.00 | 95.06 | 0.00 | 4.15 | 0.00 | 517.35 | 35.19 | 0.00 | 0.00 | 482.16 |
| 24+00 | 2400.00 | 50.00 | 55.22 | 0.00 | 1.26 | 0.00 | 99.02 | 0.00 | 2.83 | 0.00 | 616.37 | 38.59 | 0.00 | 0.00 | 577.78 |
| 24+50 | 2450.00 | 50.00 | 59.78 | 0.00 | 1.67 | 0.00 | 106.48 | 0.00 | 2.71 | 0.00 | 722.85 | 41.84 | 0.00 | 0.00 | 681.01 |
| 25+00 | 2500.00 | 50.00 | 68.26 | 0.00 | 8.68 | 0.00 | 118.56 | 0.00 | 9.58 | 0.00 | 841.41 | 53.34 | 0.00 | 0.00 | 788.06 |
| 25+50 | 2550.00 | 50.00 | 56.25 | 0.00 | 12.60 | 0.00 | 115.29 | 0.00 | 19.70 | 0.00 | 956.69 | 76.99 | 0.00 | 0.00 | 879.71 |
| 26+00 | 2600.00 | 50.00 | 31.17 | 0.00 | 14.14 | 0.00 | 80.94 | 0.00 | 24.76 | 0.00 | 1037.64 | 106.70 | 0.00 | 0.00 | 930.94 |
| 26+23 | 2623.01 | 23.01 | 21.78 | 0.00 | 29.89 | 0.00 | 22.56 | 0.00 | 18.76 | 0.00 | 1060.20 | 129.21 | 0.00 | 0.00 | 930.99 |
| 26+23 | 2623.01 | 0.00 | 28.88 | 0.00 | 29.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1060.20 | 129.21 | 0.00 | 0.00 | 930.99 |
| 26+50 | 2650.00 | 26.99 | 10.42 | 0.00 | 62.71 | 0.00 | 19.64 | 0.00 | 46.29 | 0.00 | 1079.84 | 184.76 | 0.00 | 0.00 | 895.09 |
| 27+00 | 2700.00 | 50.00 | 0.00 | 0.00 | 453.42 | 0.00 | 9.65 | 0.00 | 477.90 | 0.00 | 1089.49 | 758.23 | 0.00 | 0.00 | 331.26 |
| 27+37 | 2737.17 | 37.17 | 0.00 | 0.00 | 1660.56 | 0.00 | 0.00 | 0.00 | 1455.12 | 0.00 | 1089.49 | 2504.38 | 0.00 | 0.00 | -1414.89 |
| 27+42 BK | 2741.94 | 4.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 146.68 | 0.00 | 1089.49 | 2680.40 | 0.00 | 0.00 | -1590.91 |
| | | | | | | Column totals | 1089.49 | 0.00 | 2233.67 | 0.00 | | | | | |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4707
August 17, 2015



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4707 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew83 PLOT SCALE : 1:1

**Division 3 EWP**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10+62 AH | 1062.20 | 0.00 | 2.96 | 0.00 | 9.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11+00 | 1100.00 | 37.80 | 3.57 | 0.00 | 10.59 | 0.00 | 4.57 | 0.00 | 14.18 | 0.00 | 4.57 | 17.02 | 0.00 | 0.00 | -12.45 |
| 11+50 | 1150.00 | 50.00 | 4.99 | 0.00 | 10.88 | 0.00 | 7.93 | 0.00 | 19.88 | 0.00 | 12.50 | 40.87 | 0.00 | 0.00 | -28.38 |
| 12+00 | 1200.00 | 50.00 | 0.00 | 0.00 | 16.86 | 0.00 | 4.62 | 0.00 | 25.69 | 0.00 | 17.12 | 71.70 | 0.00 | 0.00 | -54.58 |
| 12+50 | 1250.00 | 50.00 | 9.87 | 0.00 | 3.90 | 0.00 | 9.14 | 0.00 | 19.22 | 0.00 | 26.26 | 94.76 | 0.00 | 0.00 | -68.51 |
| 13+00 | 1300.00 | 50.00 | 28.80 | 0.00 | 21.73 | 0.00 | 35.81 | 0.00 | 23.73 | 0.00 | 62.06 | 123.24 | 0.00 | 0.00 | -61.18 |
| 13+50 | 1350.00 | 50.00 | 34.73 | 0.00 | 26.43 | 0.00 | 58.82 | 0.00 | 44.59 | 0.00 | 120.89 | 176.75 | 0.00 | 0.00 | -55.87 |
| 14+00 | 1400.00 | 50.00 | 39.88 | 0.00 | 32.06 | 0.00 | 69.08 | 0.00 | 54.16 | 0.00 | 189.97 | 241.74 | 0.00 | 0.00 | -51.77 |
| 14+50 | 1450.00 | 50.00 | 22.09 | 0.00 | 49.64 | 0.00 | 57.38 | 0.00 | 75.65 | 0.00 | 247.35 | 332.52 | 0.00 | 0.00 | -85.17 |
| 15+00 | 1500.00 | 50.00 | 3.33 | 0.00 | 78.00 | 0.00 | 23.54 | 0.00 | 118.19 | 0.00 | 270.89 | 474.34 | 0.00 | 0.00 | -203.45 |
| 15+50 | 1550.00 | 50.00 | 0.00 | 0.00 | 119.31 | 0.00 | 3.08 | 0.00 | 182.69 | 0.00 | 273.97 | 693.57 | 0.00 | 0.00 | -419.60 |
| 16+00 | 1600.00 | 50.00 | 0.00 | 0.00 | 188.75 | 0.00 | 0.00 | 0.00 | 285.24 | 0.00 | 273.97 | 1035.86 | 0.00 | 0.00 | -761.89 |
| 16+50 | 1650.00 | 50.00 | 0.00 | 0.00 | 96.25 | 0.00 | 0.00 | 0.00 | 263.89 | 0.00 | 273.97 | 1352.53 | 0.00 | 0.00 | -1078.56 |
| 17+00 | 1700.00 | 50.00 | 0.00 | 0.00 | 86.25 | 0.00 | 0.00 | 0.00 | 168.98 | 0.00 | 273.97 | 1555.31 | 0.00 | 0.00 | -1281.34 |
| 17+50 | 1750.00 | 50.00 | 0.00 | 0.00 | 61.81 | 0.00 | 0.00 | 0.00 | 137.09 | 0.00 | 273.97 | 1719.82 | 0.00 | 0.00 | -1445.85 |
| 18+00 | 1800.00 | 50.00 | 0.00 | 0.00 | 101.41 | 0.00 | 0.00 | 0.00 | 151.13 | 0.00 | 273.97 | 1901.17 | 0.00 | 0.00 | -1627.20 |
| 18+50 | 1850.00 | 50.00 | 1.95 | 0.00 | 56.79 | 0.00 | 1.81 | 0.00 | 146.48 | 0.00 | 275.77 | 2076.95 | 0.00 | 0.00 | -1801.18 |
| 19+00 | 1900.00 | 50.00 | 9.63 | 0.00 | 22.42 | 0.00 | 10.72 | 0.00 | 73.34 | 0.00 | 286.50 | 2164.96 | 0.00 | 0.00 | -1878.47 |
| 19+50 | 1950.00 | 50.00 | 20.77 | 0.00 | 5.12 | 0.00 | 28.15 | 0.00 | 25.50 | 0.00 | 314.65 | 2195.56 | 0.00 | 0.00 | -1880.92 |
| 20+00 | 2000.00 | 50.00 | 39.20 | 0.00 | 0.01 | 0.00 | 55.53 | 0.00 | 4.75 | 0.00 | 370.17 | 2201.26 | 0.00 | 0.00 | -1831.09 |
| 20+50 | 2050.00 | 50.00 | 37.97 | 0.00 | 0.00 | 0.00 | 71.45 | 0.00 | 0.01 | 0.00 | 441.63 | 2201.27 | 0.00 | 0.00 | -1759.65 |
| 21+00 | 2100.00 | 50.00 | 31.98 | 0.00 | 0.08 | 0.00 | 64.77 | 0.00 | 0.07 | 0.00 | 506.40 | 2201.36 | 0.00 | 0.00 | -1694.97 |
| 21+50 | 2150.00 | 50.00 | 3.60 | 0.00 | 16.82 | 0.00 | 32.94 | 0.00 | 15.65 | 0.00 | 539.34 | 2220.14 | 0.00 | 0.00 | -1680.80 |
| 22+00 | 2200.00 | 50.00 | 3.62 | 0.00 | 10.20 | 0.00 | 6.69 | 0.00 | 25.02 | 0.00 | 546.02 | 2250.16 | 0.00 | 0.00 | -1704.14 |
| 22+50 | 2250.00 | 50.00 | 3.62 | 0.00 | 5.67 | 0.00 | 6.70 | 0.00 | 14.69 | 0.00 | 552.73 | 2267.80 | 0.00 | 0.00 | -1715.07 |
| 23+00 | 2300.00 | 50.00 | 3.62 | 0.00 | 13.01 | 0.00 | 6.70 | 0.00 | 17.30 | 0.00 | 559.43 | 2288.55 | 0.00 | 0.00 | -1729.12 |
| 23+50 | 2350.00 | 50.00 | 3.61 | 0.00 | 10.23 | 0.00 | 6.69 | 0.00 | 21.52 | 0.00 | 566.13 | 2314.37 | 0.00 | 0.00 | -1748.25 |
| 23+85 BK | 2384.76 | 34.76 | 4.02 | 0.00 | 0.00 | 0.00 | 4.91 | 0.00 | 6.59 | 0.00 | 571.04 | 2322.28 | 0.00 | 0.00 | -1751.24 |
| | | | | | Column totals | | 571.04 | 0.00 | 1935.23 | 0.00 | | | | | |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4710
August 17, 2015



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4710 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew86 PLOT SCALE : 1:1

**Division 4 RAMP EN**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Salvaged/ Unusable Pavement Material Note 2 | Fill Note 3 | EBS | Cumulative Vol (CY) Cut Note 1 | Expanded Fill 1.2 | Expanded EBS Backfill 1.30 Note 4 | Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 527+00 AH | 52700.00 | 0.00 | 0.00 | 0.00 | 521.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.20 | 0.00 | 0.00 | 0.00 |
| 527+50 | 52750.00 | 50.00 | 0.00 | 0.00 | 473.92 | 0.00 | 0.00 | 0.00 | 921.44 | 0.00 | 0.00 | 1106.93 | 0.00 | 0.00 | -1105.73 |
| 528+00 | 52800.00 | 50.00 | 0.00 | 0.00 | 253.82 | 0.00 | 0.00 | 0.00 | 673.83 | 0.00 | 0.00 | 1915.53 | 0.00 | 0.00 | -1914.33 |
| 528+50 | 52850.00 | 50.00 | 0.00 | 0.00 | 713.21 | 0.00 | 0.00 | 0.00 | 895.40 | 0.00 | 0.00 | 2990.01 | 0.00 | 0.00 | -2988.81 |
| 529+00 | 52900.00 | 50.00 | 0.00 | 0.00 | 1989.10 | 0.00 | 0.00 | 0.00 | 2502.14 | 0.00 | 0.00 | 5992.58 | 0.00 | 0.00 | -5991.38 |
| 529+50 | 52950.00 | 50.00 | 0.00 | 0.00 | 2289.20 | 0.00 | 0.00 | 0.00 | 3961.39 | 0.00 | 0.00 | 10746.24 | 0.00 | 0.00 | -10745.04 |
| 530+00 | 53000.00 | 50.00 | 0.00 | 0.00 | 2318.43 | 0.00 | 0.00 | 0.00 | 4266.32 | 0.00 | 0.00 | 15865.83 | 0.00 | 0.00 | -15864.63 |
| 530+50 | 53050.00 | 50.00 | 0.00 | 0.00 | 1689.81 | 0.00 | 0.00 | 0.00 | 3711.33 | 0.00 | 0.00 | 20319.43 | 0.00 | 0.00 | -20318.23 |
| 531+00 | 53100.00 | 50.00 | 0.00 | 0.00 | 1224.47 | 0.00 | 0.00 | 0.00 | 2698.41 | 0.00 | 0.00 | 23557.52 | 0.00 | 0.00 | -23556.32 |
| 531+50 BK | 53150.00 | 50.00 | 0.00 | 0.00 | 847.77 | 0.00 | 0.00 | 0.00 | 1918.74 | 0.00 | 0.00 | 25860.01 | 0.00 | 0.00 | -25858.81 |
| 540+30 AH | 54030.39 | 0.00 | 145.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 540+50 | 54050.00 | 19.61 | 139.97 | 0.00 | 0.00 | 0.00 | 103.67 | 0.00 | 0.00 | 0.00 | 103.67 | 0.00 | 0.00 | 0.00 | 103.67 |
| 541+00 | 54100.00 | 50.00 | 132.94 | 0.00 | 0.00 | 0.00 | 252.69 | 0.00 | 0.00 | 0.00 | 356.37 | 0.00 | 0.00 | 0.00 | 356.37 |
| 541+50 | 54150.00 | 50.00 | 126.72 | 0.00 | 0.00 | 0.00 | 240.43 | 0.00 | 0.00 | 0.00 | 596.79 | 0.00 | 0.00 | 0.00 | 596.79 |
| 542+00 | 54200.00 | 50.00 | 118.63 | 0.00 | 0.00 | 0.00 | 227.18 | 0.00 | 0.00 | 0.00 | 823.97 | 0.00 | 0.00 | 0.00 | 823.97 |
| 542+50 | 54250.00 | 50.00 | 107.97 | 0.00 | 0.00 | 0.00 | 209.81 | 0.00 | 0.00 | 0.00 | 1033.78 | 0.00 | 0.00 | 0.00 | 1033.78 |
| 542+66 BK | 54265.62 | 15.62 | 104.54 | 0.00 | 0.00 | 0.00 | 61.47 | 0.00 | 0.00 | 0.00 | 1095.25 | 0.00 | 0.00 | 0.00 | 1095.25 |
| | | Column totals | | | | | 1095.25 | 0.00 | 21549.01 | 0.00 | | | | | |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4728
August 17, 2015



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4728 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew104 PLOT SCALE : 1:1

**Division 4 RAMP BA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 724+59 AH | 72459.43 | 0.00 | 155.55 | 0.00 | 89.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 725+00 | 72500.00 | 40.57 | 0.00 | 0.00 | 459.33 | 0.00 | 116.86 | 0.00 | 412.32 | 0.00 | 116.86 | 494.78 | 0.00 | 0.00 | -377.92 |
| 725+50 | 72550.00 | 50.00 | 0.01 | 0.00 | 307.03 | 0.00 | 0.01 | 0.00 | 709.59 | 0.00 | 116.87 | 1346.29 | 0.00 | 0.00 | -1229.42 |
| 726+00 | 72600.00 | 50.00 | 0.00 | 0.00 | 274.56 | 0.00 | 0.01 | 0.00 | 538.51 | 0.00 | 116.88 | 1992.50 | 0.00 | 0.00 | -1875.62 |
| 726+50 | 72650.00 | 50.00 | 0.00 | 0.00 | 218.34 | 0.00 | 0.00 | 0.00 | 456.39 | 0.00 | 116.88 | 2540.17 | 0.00 | 0.00 | -2423.29 |
| 727+00 | 72700.00 | 50.00 | 0.00 | 0.00 | 170.95 | 0.00 | 0.00 | 0.00 | 360.45 | 0.00 | 116.88 | 2972.72 | 0.00 | 0.00 | -2855.83 |
| 727+50 | 72750.00 | 50.00 | 1.28 | 0.00 | 100.72 | 0.00 | 1.19 | 0.00 | 251.55 | 0.00 | 118.07 | 3274.57 | 0.00 | 0.00 | -3156.50 |
| 728+00 | 72800.00 | 50.00 | 54.57 | 0.00 | 5.17 | 0.00 | 51.71 | 0.00 | 98.05 | 0.00 | 169.78 | 3392.23 | 0.00 | 0.00 | -3222.45 |
| 728+50 | 72850.00 | 50.00 | 98.15 | 0.00 | 38.23 | 0.00 | 141.41 | 0.00 | 40.19 | 0.00 | 311.19 | 3440.45 | 0.00 | 0.00 | -3129.26 |
| 729+00 | 72900.00 | 50.00 | 266.58 | 0.00 | 0.27 | 0.00 | 337.71 | 0.00 | 35.65 | 0.00 | 648.90 | 3483.23 | 0.00 | 0.00 | -2834.33 |
| 729+50 | 72950.00 | 50.00 | 446.55 | 0.00 | 0.00 | 0.00 | 660.31 | 0.00 | 0.25 | 0.00 | 1309.21 | 3483.53 | 0.00 | 0.00 | -2174.32 |
| 730+00 | 73000.00 | 50.00 | 652.16 | 0.00 | 0.00 | 0.00 | 1017.32 | 0.00 | 0.00 | 0.00 | 2326.53 | 3483.53 | 0.00 | 0.00 | -1157.00 |
| 730+50 | 73050.00 | 50.00 | 676.85 | 0.00 | 0.00 | 0.00 | 1230.56 | 0.00 | 0.00 | 0.00 | 3557.10 | 3483.53 | 0.00 | 0.00 | 73.57 |
| 731+00 | 73100.00 | 50.00 | 689.92 | 0.00 | 0.00 | 0.00 | 1265.53 | 0.00 | 0.00 | 0.00 | 4822.62 | 3483.53 | 0.00 | 0.00 | 1339.10 |
| 731+50 | 73150.00 | 50.00 | 700.51 | 0.00 | 0.00 | 0.00 | 1287.44 | 0.00 | 0.00 | 0.00 | 6110.06 | 3483.53 | 0.00 | 0.00 | 2626.53 |
| 732+00 | 73200.00 | 50.00 | 713.12 | 0.00 | 227.35 | 0.00 | 1308.92 | 0.00 | 210.51 | 0.00 | 7418.98 | 3736.14 | 0.00 | 0.00 | 3682.84 |
| 732+50 | 73250.00 | 50.00 | 558.31 | 0.00 | 1126.65 | 0.00 | 1177.25 | 0.00 | 1253.70 | 0.00 | 8596.23 | 5240.58 | 0.00 | 0.00 | 3355.64 |
| 732+80 | 73279.78 | 29.78 | 507.79 | 0.00 | 1536.36 | 0.00 | 587.93 | 0.00 | 1468.60 | 0.00 | 9184.16 | 7002.90 | 0.00 | 0.00 | 2181.26 |
| 732+80 | 73279.78 | 0.00 | 655.27 | 0.00 | 1536.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9184.16 | 7002.90 | 0.00 | 0.00 | 2181.26 |
| 733+00 | 73300.00 | 20.22 | 584.78 | 0.00 | 1854.48 | 0.00 | 464.33 | 0.00 | 1269.79 | 0.00 | 9648.49 | 8526.65 | 0.00 | 0.00 | 1121.84 |
| 733+50 | 73350.00 | 50.00 | 369.10 | 0.00 | 2807.72 | 0.00 | 883.22 | 0.00 | 4316.85 | 0.00 | 10531.71 | 13706.87 | 0.00 | 0.00 | -3175.16 |
| 734+00 | 73400.00 | 50.00 | 289.93 | 0.00 | 2302.16 | 0.00 | 610.21 | 0.00 | 4731.37 | 0.00 | 11141.92 | 19384.52 | 0.00 | 0.00 | -8242.59 |
| 734+17 | 73416.78 | 16.78 | 272.75 | 0.00 | 0.00 | 0.00 | 174.85 | 0.00 | 715.37 | 0.00 | 11316.77 | 20242.97 | 0.00 | 0.00 | -8926.20 |
| 734+50 | 73450.00 | 33.22 | 243.18 | 0.00 | 0.00 | 0.00 | 317.39 | 0.00 | 0.00 | 0.00 | 11634.16 | 20242.97 | 0.00 | 0.00 | -8608.80 |
| 735+00 | 73500.00 | 50.00 | 205.46 | 0.00 | 17.09 | 0.00 | 415.41 | 0.00 | 15.82 | 0.00 | 12049.57 | 20261.96 | 0.00 | 0.00 | -8212.38 |
| 735+35 BK | 73534.70 | 34.70 | 191.47 | 0.00 | 1531.55 | 0.00 | 255.06 | 0.00 | 995.14 | 0.00 | 12304.64 | 21456.13 | 0.00 | 0.00 | -9151.49 |
| | | | | | | Column totals | 12304.64 | 0.00 | 17880.11 | 0.00 | | | | | |

1

Addendum No. 01
ID 1060-33-81
Revised Sheet 4729
August 17, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

**Division 5 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material | Incremental Vol (CY) (Unadjusted) Fill | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut | Cumulative Vol (CY) Expanded Fill | Cumulative Vol (CY) Expanded EBS Backfill | Cumulative Vol (CY) Reduced EBS In Fill | Mass Ordinate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 1.00 | 1.2 | 1.30 | 0.80 | |
| | | | | | | | Note 1 | Note 2 | Note 3 | | Note 1 | | Note 4 | Note 5 | Note 6 |
| 162+00 AH | 16200.00 | 0.00 | 86.12 | 0.00 | 1.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 162+50 | 16250.00 | 50.00 | 58.04 | 0.00 | 8.96 | 0.00 | 133.48 | 0.00 | 9.56 | 0.00 | 133.48 | 11.47 | 0.00 | 0.00 | 122.01 |
| 163+00 | 16300.00 | 50.00 | 49.06 | 0.00 | 17.26 | 0.00 | 99.17 | 0.00 | 24.28 | 0.00 | 232.65 | 40.60 | 0.00 | 0.00 | 192.05 |
| 163+50 | 16350.00 | 50.00 | 53.81 | 0.00 | 21.36 | 0.00 | 95.25 | 0.00 | 35.76 | 0.00 | 327.90 | 83.51 | 0.00 | 0.00 | 244.39 |
| 164+00 | 16400.00 | 50.00 | 63.55 | 0.00 | 30.98 | 0.00 | 108.67 | 0.00 | 48.46 | 0.00 | 436.56 | 141.67 | 0.00 | 0.00 | 294.90 |
| 164+50 | 16450.00 | 50.00 | 71.57 | 0.00 | 33.18 | 0.00 | 125.11 | 0.00 | 59.41 | 0.00 | 561.68 | 212.96 | 0.00 | 0.00 | 348.72 |
| 165+00 | 16500.00 | 50.00 | 80.46 | 0.00 | 37.24 | 0.00 | 140.77 | 0.00 | 65.20 | 0.00 | 702.44 | 291.20 | 0.00 | 0.00 | 411.24 |
| 165+50 | 16550.00 | 50.00 | 97.82 | 0.00 | 48.93 | 0.00 | 165.07 | 0.00 | 79.79 | 0.00 | 867.52 | 386.94 | 0.00 | 0.00 | 480.57 |
| 166+00 | 16600.00 | 50.00 | 107.71 | 0.00 | 60.40 | 0.00 | 190.31 | 0.00 | 101.23 | 0.00 | 1057.82 | 508.42 | 0.00 | 0.00 | 549.40 |
| 166+50 | 16650.00 | 50.00 | 112.31 | 0.00 | 18.80 | 0.00 | 203.72 | 0.00 | 73.33 | 0.00 | 1261.55 | 596.42 | 0.00 | 0.00 | 665.12 |
| 167+00 | 16700.00 | 50.00 | 171.37 | 0.00 | 0.00 | 0.00 | 262.67 | 0.00 | 17.41 | 0.00 | 1524.21 | 617.31 | 0.00 | 0.00 | 906.90 |
| 167+50 | 16750.00 | 50.00 | 94.33 | 0.00 | 0.00 | 0.00 | 246.02 | 0.00 | 0.00 | 0.00 | 1770.23 | 617.31 | 0.00 | 0.00 | 1152.92 |
| 168+00 | 16800.00 | 50.00 | 81.66 | 0.00 | 0.00 | 0.00 | 162.95 | 0.00 | 0.00 | 0.00 | 1933.19 | 617.31 | 0.00 | 0.00 | 1315.87 |
| 168+50 | 16850.00 | 50.00 | 71.01 | 0.00 | 0.00 | 0.00 | 141.36 | 0.00 | 0.00 | 0.00 | 2074.55 | 617.31 | 0.00 | 0.00 | 1457.24 |
| 169+00 | 16900.00 | 50.00 | 63.38 | 0.00 | 0.00 | 0.00 | 124.44 | 0.00 | 0.00 | 0.00 | 2198.98 | 617.31 | 0.00 | 0.00 | 1581.67 |
| 169+50 | 16950.00 | 50.00 | 56.59 | 0.00 | 0.00 | 0.00 | 111.08 | 0.00 | 0.00 | 0.00 | 2310.06 | 617.31 | 0.00 | 0.00 | 1692.75 |
| 170+00 | 17000.00 | 50.00 | 54.08 | 0.00 | 0.00 | 0.00 | 102.47 | 0.00 | 0.00 | 0.00 | 2412.54 | 617.31 | 0.00 | 0.00 | 1795.23 |
| 170+50 | 17050.00 | 50.00 | 54.72 | 0.00 | 0.00 | 0.00 | 100.74 | 0.00 | 0.00 | 0.00 | 2513.28 | 617.31 | 0.00 | 0.00 | 1895.97 |
| 171+00 | 17100.00 | 50.00 | 58.25 | 0.00 | 0.00 | 0.00 | 104.60 | 0.00 | 0.00 | 0.00 | 2617.88 | 617.31 | 0.00 | 0.00 | 2000.57 |
| 171+50 | 17150.00 | 50.00 | 27.85 | 0.00 | 4.98 | 0.00 | 79.72 | 0.00 | 4.61 | 0.00 | 2697.60 | 622.84 | 0.00 | 0.00 | 2074.76 |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4735
August 17, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 5 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 172+00 | 17200.00 | 50.00 | 68.69 | 0.00 | 0.00 | 0.00 | 89.39 | 0.00 | 4.61 | 0.00 | 2786.99 | 628.38 | 0.00 | 0.00 | 2158.61 |
| 172+50 | 17250.00 | 50.00 | 80.52 | 0.00 | 0.00 | 0.00 | 138.16 | 0.00 | 0.00 | 0.00 | 2925.15 | 628.38 | 0.00 | 0.00 | 2296.77 |
| 173+00 | 17300.00 | 50.00 | 90.58 | 0.00 | 0.00 | 0.00 | 158.43 | 0.00 | 0.00 | 0.00 | 3083.57 | 628.38 | 0.00 | 0.00 | 2455.20 |
| 173+10 | 17309.66 | 9.66 | 91.41 | 0.00 | 0.00 | 0.00 | 32.56 | 0.00 | 0.00 | 0.00 | 3116.13 | 628.38 | 0.00 | 0.00 | 2487.75 |
| 173+10 | 17309.66 | 0.00 | 40.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3116.13 | 628.38 | 0.00 | 0.00 | 2487.75 |
| 173+50 | 17350.00 | 40.34 | 40.66 | 0.00 | 0.00 | 0.00 | 60.26 | 0.00 | 0.00 | 0.00 | 3176.39 | 628.38 | 0.00 | 0.00 | 2548.01 |
| 174+00 | 17400.00 | 50.00 | 39.96 | 0.00 | 0.00 | 0.00 | 74.65 | 0.00 | 0.00 | 0.00 | 3251.03 | 628.38 | 0.00 | 0.00 | 2622.66 |
| 174+50 | 17450.00 | 50.00 | 38.93 | 0.00 | 0.00 | 0.00 | 73.05 | 0.00 | 0.00 | 0.00 | 3324.08 | 628.38 | 0.00 | 0.00 | 2695.70 |
| 175+00 | 17500.00 | 50.00 | 39.59 | 0.00 | 0.00 | 0.00 | 72.70 | 0.00 | 0.00 | 0.00 | 3396.78 | 628.38 | 0.00 | 0.00 | 2768.41 |
| 175+40 | 17539.93 | 39.93 | 42.02 | 0.00 | 0.00 | 0.00 | 60.35 | 0.00 | 0.00 | 0.00 | 3457.13 | 628.38 | 0.00 | 0.00 | 2828.75 |
| 175+40 | 17539.93 | 0.00 | 427.82 | 0.00 | 3.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3457.13 | 628.38 | 0.00 | 0.00 | 2828.75 |
| 175+50 | 17550.00 | 10.07 | 447.65 | 0.00 | 11.29 | 0.00 | 163.26 | 0.00 | 2.83 | 0.00 | 3620.39 | 631.78 | 0.00 | 0.00 | 2988.61 |
| 176+00 | 17600.00 | 50.00 | 573.16 | 0.00 | 4.34 | 0.00 | 945.19 | 0.00 | 14.47 | 0.00 | 4565.58 | 649.15 | 0.00 | 0.00 | 3916.44 |
| 176+50 | 17650.00 | 50.00 | 737.47 | 0.00 | 3.09 | 0.00 | 1213.55 | 0.00 | 6.88 | 0.00 | 5779.13 | 657.40 | 0.00 | 0.00 | 5121.73 |
| 177+00 | 17700.00 | 50.00 | 836.95 | 0.00 | 4.46 | 0.00 | 1457.80 | 0.00 | 6.99 | 0.00 | 7236.93 | 665.79 | 0.00 | 0.00 | 6571.14 |
| 177+50 | 17750.00 | 50.00 | 848.64 | 0.00 | 2.97 | 0.00 | 1560.73 | 0.00 | 6.88 | 0.00 | 8797.66 | 674.05 | 0.00 | 0.00 | 8123.61 |
| 178+00 | 17800.00 | 50.00 | 867.90 | 0.00 | 0.00 | 0.00 | 1589.39 | 0.00 | 2.75 | 0.00 | 10387.05 | 677.35 | 0.00 | 0.00 | 9709.70 |
| 178+50 | 17850.00 | 50.00 | 840.08 | 0.00 | 12.61 | 0.00 | 1581.46 | 0.00 | 11.68 | 0.00 | 11968.51 | 691.36 | 0.00 | 0.00 | 11277.15 |
| 178+50 | 17850.00 | 0.00 | 839.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 11968.51 | 691.36 | 0.00 | 0.00 | 11277.15 |
| 179+00 | 17900.00 | 50.00 | 711.84 | 0.00 | 10.88 | 0.00 | 1436.26 | 0.00 | 10.07 | 0.00 | 13404.77 | 703.45 | 0.00 | 0.00 | 12701.32 |
| 179+50 | 17950.00 | 50.00 | 616.12 | 0.00 | 63.04 | 0.00 | 1229.59 | 0.00 | 68.44 | 0.00 | 14634.36 | 785.58 | 0.00 | 0.00 | 13848.78 |
| 180+00 BK | 18000.00 | 50.00 | 0.00 | 0.00 | 141.43 | 0.00 | 570.48 | 0.00 | 189.32 | 0.00 | 15204.84 | 1012.77 | 0.00 | 0.00 | 14192.07 |
| | | | | | | Column totals | 15204.84 | 0.00 | 843.97 | 0.00 | | | | | |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4736
August 17, 2015



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4736 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew112 PLOT SCALE : 1:1

**Division 5 RAMP WS**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 560+45 AH | 56044.51 | 0.00 | 0.00 | 0.00 | 15.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 560+50 | 56050.00 | 5.49 | 0.00 | 0.00 | 9.97 | 0.00 | 0.00 | 0.00 | 2.56 | 0.00 | 0.00 | 3.07 | 0.00 | 0.00 | -3.07 |
| 561+00 | 56100.00 | 50.00 | 0.00 | 0.00 | 11.67 | 0.00 | 0.00 | 0.00 | 20.04 | 0.00 | 0.00 | 27.11 | 0.00 | 0.00 | -27.11 |
| 561+50 | 56150.00 | 50.00 | 0.00 | 0.00 | 14.51 | 0.00 | 0.00 | 0.00 | 24.24 | 0.00 | 0.00 | 56.20 | 0.00 | 0.00 | -56.20 |
| 561+80 BK | 56180.00 | 30.00 | 0.00 | 0.00 | 17.37 | 0.00 | 0.00 | 0.00 | 17.71 | 0.00 | 0.00 | 77.45 | 0.00 | 0.00 | -77.45 |
| 562+32 AH | 56231.79 | 0.00 | 0.00 | 0.00 | 84.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 562+50 | 56250.00 | 18.21 | 0.00 | 0.00 | 25.32 | 0.00 | 0.00 | 0.00 | 37.11 | 0.00 | 0.00 | 44.53 | 0.00 | 0.00 | -44.53 |
| 563+00 | 56300.00 | 50.00 | 0.00 | 0.00 | 31.38 | 0.00 | 0.00 | 0.00 | 52.50 | 0.00 | 0.00 | 107.53 | 0.00 | 0.00 | -107.53 |
| 563+50 | 56350.00 | 50.00 | 0.00 | 0.00 | 41.86 | 0.00 | 0.00 | 0.00 | 67.81 | 0.00 | 0.00 | 188.91 | 0.00 | 0.00 | -188.91 |
| 564+00 | 56400.00 | 50.00 | 0.00 | 0.00 | 56.42 | 0.00 | 0.00 | 0.00 | 91.00 | 0.00 | 0.00 | 298.11 | 0.00 | 0.00 | -298.11 |
| 564+50 | 56450.00 | 50.00 | 0.00 | 0.00 | 77.68 | 0.00 | 0.00 | 0.00 | 124.17 | 0.00 | 0.00 | 447.11 | 0.00 | 0.00 | -447.11 |
| 565+00 | 56500.00 | 50.00 | 0.00 | 0.00 | 103.49 | 0.00 | 0.00 | 0.00 | 167.75 | 0.00 | 0.00 | 648.41 | 0.00 | 0.00 | -648.41 |
| 565+50 | 56550.00 | 50.00 | 0.00 | 0.00 | 131.57 | 0.00 | 0.00 | 0.00 | 217.65 | 0.00 | 0.00 | 909.59 | 0.00 | 0.00 | -909.59 |
| 566+00 | 56600.00 | 50.00 | 0.00 | 0.00 | 159.78 | 0.00 | 0.00 | 0.00 | 269.77 | 0.00 | 0.00 | 1233.31 | 0.00 | 0.00 | -1233.31 |
| 566+11 BK | 56610.98 | 10.98 | 0.00 | 0.00 | 167.96 | 0.00 | 0.00 | 0.00 | 66.64 | 0.00 | 0.00 | 1313.28 | 0.00 | 0.00 | -1313.28 |
| | | | | | Column totals | | 0.00 | 0.00 | 1158.95 | 0.00 | | | | | |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4737
August 17, 2015



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4737 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/11/2015 11:25:36 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew113 PLOT SCALE : 1:1

**Division 5 RAMP SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 566+78 AH | 56677.50 | 0.00 | 171.93 | 0.00 | 8.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 567+00 | 56700.00 | 22.50 | 35.08 | 0.00 | 9.40 | 0.00 | 86.25 | 0.00 | 7.39 | 0.00 | 86.25 | 8.87 | 0.00 | 0.00 | 77.39 |
| 567+50 | 56750.00 | 50.00 | 0.00 | 0.00 | 30.96 | 0.00 | 32.48 | 0.00 | 37.37 | 0.00 | 118.74 | 53.71 | 0.00 | 0.00 | 65.03 |
| 568+00 | 56800.00 | 50.00 | 0.00 | 0.00 | 17.57 | 0.00 | 0.00 | 0.00 | 44.94 | 0.00 | 118.74 | 107.63 | 0.00 | 0.00 | 11.10 |
| 568+50 | 56850.00 | 50.00 | 0.46 | 0.00 | 14.60 | 0.00 | 0.43 | 0.00 | 29.79 | 0.00 | 119.16 | 143.38 | 0.00 | 0.00 | -24.21 |
| 569+00 | 56900.00 | 50.00 | 1.45 | 0.00 | 13.78 | 0.00 | 1.77 | 0.00 | 26.28 | 0.00 | 120.93 | 174.91 | 0.00 | 0.00 | -53.98 |
| 569+50 | 56950.00 | 50.00 | 1.73 | 0.00 | 13.73 | 0.00 | 2.94 | 0.00 | 25.47 | 0.00 | 123.87 | 205.48 | 0.00 | 0.00 | -81.60 |
| 570+00 | 57000.00 | 50.00 | 3.53 | 0.00 | 16.07 | 0.00 | 4.87 | 0.00 | 27.59 | 0.00 | 128.74 | 238.59 | 0.00 | 0.00 | -109.84 |
| 570+50 | 57050.00 | 50.00 | 12.18 | 0.00 | 12.32 | 0.00 | 14.55 | 0.00 | 26.29 | 0.00 | 143.29 | 270.13 | 0.00 | 0.00 | -126.84 |
| 570+86 | 57086.00 | 36.00 | 4.86 | 0.00 | 29.74 | 0.00 | 11.36 | 0.00 | 28.04 | 0.00 | 154.65 | 303.78 | 0.00 | 0.00 | -149.13 |
| 570+86 | 57086.00 | 0.00 | 7.91 | 0.00 | 17.92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 154.65 | 303.78 | 0.00 | 0.00 | -149.13 |
| 571+00 | 57100.00 | 14.00 | 33.64 | 0.00 | 68.71 | 0.00 | 10.77 | 0.00 | 22.46 | 0.00 | 165.42 | 330.73 | 0.00 | 0.00 | -165.31 |
| 571+50 | 57150.00 | 50.00 | 0.54 | 0.00 | 67.54 | 0.00 | 31.65 | 0.00 | 126.16 | 0.00 | 197.07 | 482.12 | 0.00 | 0.00 | -285.05 |
| 572+00 | 57200.00 | 50.00 | 2.53 | 0.00 | 24.27 | 0.00 | 2.84 | 0.00 | 85.01 | 0.00 | 199.91 | 584.13 | 0.00 | 0.00 | -384.22 |
| 572+50 | 57250.00 | 50.00 | 29.35 | 0.00 | 13.00 | 0.00 | 29.52 | 0.00 | 34.51 | 0.00 | 229.43 | 625.54 | 0.00 | 0.00 | -396.11 |
| 573+00 | 57300.00 | 50.00 | 70.71 | 0.00 | 12.74 | 0.00 | 92.65 | 0.00 | 23.83 | 0.00 | 322.08 | 654.14 | 0.00 | 0.00 | -332.06 |
| 573+00 | 57300.00 | 0.00 | 125.49 | 0.00 | 12.68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 322.08 | 654.14 | 0.00 | 0.00 | -332.06 |
| 573+50 | 57350.00 | 50.00 | 149.82 | 0.00 | 8.11 | 0.00 | 254.92 | 0.00 | 19.25 | 0.00 | 577.00 | 677.24 | 0.00 | 0.00 | -100.24 |
| 574+00 | 57400.00 | 50.00 | 294.94 | 0.00 | 6.35 | 0.00 | 411.81 | 0.00 | 13.39 | 0.00 | 988.81 | 693.31 | 0.00 | 0.00 | 295.50 |
| 574+50 | 57450.00 | 50.00 | 367.17 | 0.00 | 44.49 | 0.00 | 613.06 | 0.00 | 47.07 | 0.00 | 1601.88 | 749.80 | 0.00 | 0.00 | 852.08 |
| 575+00 | 57500.00 | 50.00 | 387.35 | 0.00 | 2.61 | 0.00 | 698.63 | 0.00 | 43.61 | 0.00 | 2300.51 | 802.13 | 0.00 | 0.00 | 1498.38 |
| 575+34 BK | 57534.00 | 34.00 | 392.63 | 0.00 | 0.02 | 0.00 | 491.10 | 0.00 | 1.66 | 0.00 | 2791.61 | 804.12 | 0.00 | 0.00 | 1987.49 |
| | | | | | | Column totals | 2791.61 | 0.00 | 670.10 | 0.00 | | | | | |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4741
August 17, 2015



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4741 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew117 PLOT SCALE : 1:1

(CONTINUED)

**Division 6 USH 45 SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 206+98 | 20698.00 | 0.00 | 82.68 | 0.00 | 20.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3561.69 | 137.23 | 0.00 | 0.00 | 3424.46 |
| 207+00 | 20700.00 | 2.00 | 128.01 | | 24.71 | 0.00 | 7.80 | 0.00 | 1.66 | 0.00 | 3569.50 | 139.22 | 0.00 | 0.00 | 3430.28 |
| 207+50 | 20750.00 | 50.00 | 102.05 | 0.00 | 41.76 | 0.00 | 213.02 | 0.00 | 61.55 | 0.00 | 3782.52 | 213.07 | 0.00 | 0.00 | 3569.44 |
| 208+00 | 20800.00 | 50.00 | 98.00 | 0.00 | 25.96 | 0.00 | 185.23 | 0.00 | 62.70 | 0.00 | 3967.75 | 288.32 | 0.00 | 0.00 | 3679.43 |
| 208+05 | 20805.00 | 5.00 | 77.94 | 0.00 | 20.08 | 0.00 | 16.29 | 0.00 | 4.26 | 0.00 | 3984.04 | 293.43 | 0.00 | 0.00 | 3690.60 |
| 208+05 | 20805.00 | 0.00 | 47.53 | 0.00 | 15.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3984.04 | 293.43 | 0.00 | 0.00 | 3690.60 |
| 208+50 | 20850.00 | 45.00 | 88.36 | 0.00 | 3.27 | 0.00 | 113.24 | 0.00 | 16.02 | 0.00 | 4097.28 | 312.65 | 0.00 | 0.00 | 3784.63 |
| 209+00 | 20900.00 | 50.00 | 94.16 | 0.00 | 2.71 | 0.00 | 169.00 | 0.00 | 5.54 | 0.00 | 4266.28 | 319.30 | 0.00 | 0.00 | 3946.98 |
| 209+50 | 20950.00 | 50.00 | 68.88 | 0.00 | 1.41 | 0.00 | 150.96 | 0.00 | 3.81 | 0.00 | 4417.24 | 323.88 | 0.00 | 0.00 | 4093.37 |
| 210+00 | 21000.00 | 50.00 | 69.92 | 0.00 | 0.00 | 0.00 | 128.52 | 0.00 | 1.31 | 0.00 | 4545.76 | 325.44 | 0.00 | 0.00 | 4220.32 |
| 210+50 | 21050.00 | 50.00 | 72.97 | 0.00 | 0.00 | 0.00 | 132.31 | 0.00 | 0.00 | 0.00 | 4678.07 | 325.44 | 0.00 | 0.00 | 4352.62 |
| 210+63 | 21063.00 | 13.00 | 75.17 | 0.00 | 0.00 | 0.00 | 35.66 | 0.00 | 0.00 | 0.00 | 4713.73 | 325.44 | 0.00 | 0.00 | 4388.29 |
| 210+63 | 21063.00 | 0.00 | 30.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4713.73 | 325.44 | 0.00 | 0.00 | 4388.29 |
| 211+00 | 21100.00 | 37.00 | 31.71 | 0.00 | 0.00 | 0.00 | 42.70 | 0.00 | 0.00 | 0.00 | 4756.43 | 325.44 | 0.00 | 0.00 | 4430.99 |
| 211+00 | 21100.00 | 0.00 | 61.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4756.43 | 325.44 | 0.00 | 0.00 | 4430.99 |
| 211+50 | 21150.00 | 50.00 | 59.44 | 0.00 | 0.00 | 0.00 | 112.30 | 0.00 | 0.00 | 0.00 | 4868.73 | 325.44 | 0.00 | 0.00 | 4543.28 |
| 212+00 | 21200.00 | 50.00 | 57.72 | 0.00 | 0.00 | 0.00 | 108.48 | 0.00 | 0.00 | 0.00 | 4977.21 | 325.44 | 0.00 | 0.00 | 4651.77 |
| 212+50 | 21250.00 | 50.00 | 52.95 | 0.00 | 0.00 | 0.00 | 102.47 | 0.00 | 0.00 | 0.00 | 5079.68 | 325.44 | 0.00 | 0.00 | 4754.24 |
| 212+63 | 21262.62 | 12.62 | 161.45 | 0.00 | 0.00 | 0.00 | 50.11 | 0.00 | 0.00 | 0.00 | 5129.79 | 325.44 | 0.00 | 0.00 | 4804.34 |
| 212+63 | 21262.62 | 0.00 | 302.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5129.79 | 325.44 | 0.00 | 0.00 | 4804.34 |
| 213+00 | 21300.00 | 37.38 | 423.13 | 0.00 | 0.00 | 0.00 | 502.10 | 0.00 | 0.00 | 0.00 | 5631.88 | 325.44 | 0.00 | 0.00 | 5306.44 |
| 213+50 | 21350.00 | 50.00 | 460.61 | 0.00 | 0.00 | 0.00 | 818.28 | 0.00 | 0.00 | 0.00 | 6450.16 | 325.44 | 0.00 | 0.00 | 6124.72 |
| 214+00 | 21400.00 | 50.00 | 439.97 | 0.00 | 0.00 | 0.00 | 833.87 | 0.00 | 0.00 | 0.00 | 7284.03 | 325.44 | 0.00 | 0.00 | 6958.59 |
| 214+00 | 21400.00 | 0.00 | 455.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7284.03 | 325.44 | 0.00 | 0.00 | 6958.59 |
| 214+50 | 21450.00 | 50.00 | 378.70 | 0.00 | 0.00 | 0.00 | 772.22 | 0.00 | 0.00 | 0.00 | 8056.25 | 325.44 | 0.00 | 0.00 | 7730.81 |
| 215+00 | 21500.00 | 50.00 | 297.92 | 0.00 | 0.00 | 0.00 | 626.50 | 0.00 | 0.00 | 0.00 | 8682.75 | 325.44 | 0.00 | 0.00 | 8357.31 |
| 215+50 | 21550.00 | 50.00 | 222.20 | 0.00 | 1.44 | 0.00 | 481.59 | 0.00 | 1.33 | 0.00 | 9164.35 | 327.04 | 0.00 | 0.00 | 8837.30 |
| 216+00 | 21600.00 | 50.00 | 142.16 | 0.00 | 4.24 | 0.00 | 337.37 | 0.00 | 5.26 | 0.00 | 9501.72 | 333.35 | 0.00 | 0.00 | 9168.36 |

1

Addendum No. 01
ID 1060-33-81
Revised Sheet 4751
August 17, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4751 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew127 PLOT SCALE : 1:1

(CONTINUED)

**Division 6 USH 45 SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 216+00 | 21600.00 | 0.00 | 145.15 | 0.00 | 4.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9501.72 | 333.35 | 0.00 | 0.00 | 9168.36 |
| 216+50 | 21650.00 | 50.00 | 96.56 | 0.00 | 8.76 | 0.00 | 223.81 | 0.00 | 11.83 | 0.00 | 9725.52 | 347.55 | 0.00 | 0.00 | 9377.97 |
| 217+00 | 21700.00 | 50.00 | 56.02 | 0.00 | 20.93 | 0.00 | 141.28 | 0.00 | 27.49 | 0.00 | 9866.80 | 380.54 | 0.00 | 0.00 | 9486.26 |
| 217+50 | 21750.00 | 50.00 | 22.23 | 0.00 | 48.21 | 0.00 | 72.45 | 0.00 | 64.02 | 0.00 | 9939.25 | 457.37 | 0.00 | 0.00 | 9481.89 |
| 218+00 | 21800.00 | 50.00 | 3.66 | 0.00 | 98.52 | 0.00 | 23.97 | 0.00 | 135.86 | 0.00 | 9963.23 | 620.40 | 0.00 | 0.00 | 9342.83 |
| 218+50 | 21850.00 | 50.00 | 4.83 | 0.00 | 177.02 | 0.00 | 7.86 | 0.00 | 255.13 | 0.00 | 9971.09 | 926.55 | 0.00 | 0.00 | 9044.53 |
| 219+00 | 21900.00 | 50.00 | 3.56 | 0.00 | 277.49 | 0.00 | 7.77 | 0.00 | 420.84 | 0.00 | 9978.86 | 1431.57 | 0.00 | 0.00 | 8547.29 |
| 219+50 | 21950.00 | 50.00 | 9.01 | 0.00 | 396.48 | 0.00 | 11.64 | 0.00 | 624.05 | 0.00 | 9990.49 | 2180.42 | 0.00 | 0.00 | 7810.07 |
| 220+00 | 22000.00 | 50.00 | 8.80 | 0.00 | 482.32 | 0.00 | 16.49 | 0.00 | 813.70 | 0.00 | 10006.99 | 3156.87 | 0.00 | 0.00 | 6850.12 |
| 220+50 | 22050.00 | 50.00 | 6.57 | 0.00 | 538.97 | 0.00 | 14.23 | 0.00 | 945.64 | 0.00 | 10021.22 | 4291.63 | 0.00 | 0.00 | 5729.58 |
| 221+00 | 22100.00 | 50.00 | 5.30 | 0.00 | 601.25 | 0.00 | 10.99 | 0.00 | 1055.76 | 0.00 | 10032.21 | 5558.54 | 0.00 | 0.00 | 4473.66 |
| 221+50 | 22150.00 | 50.00 | 1.67 | 0.00 | 659.58 | 0.00 | 6.45 | 0.00 | 1167.44 | 0.00 | 10038.66 | 6959.47 | 0.00 | 0.00 | 3079.20 |
| 222+00 | 22200.00 | 50.00 | 0.00 | 0.00 | 488.66 | 0.00 | 1.55 | 0.00 | 1063.19 | 0.00 | 10040.21 | 8235.29 | 0.00 | 0.00 | 1804.92 |
| 222+50 | 22250.00 | 50.00 | 0.00 | 0.00 | 510.28 | 0.00 | 0.00 | 0.00 | 924.94 | 0.00 | 10040.21 | 9345.22 | 0.00 | 0.00 | 694.99 |
| 223+00 | 22300.00 | 50.00 | 0.00 | 0.00 | 501.07 | 0.00 | 0.00 | 0.00 | 936.44 | 0.00 | 10040.21 | 10468.94 | 0.00 | 0.00 | -428.74 |
| 223+50 | 22350.00 | 50.00 | 0.00 | 0.00 | 501.65 | 0.00 | 0.00 | 0.00 | 928.44 | 0.00 | 10040.21 | 11583.08 | 0.00 | 0.00 | -1542.87 |
| 224+00 | 22400.00 | 50.00 | 0.00 | 0.00 | 514.56 | 0.00 | 0.00 | 0.00 | 940.94 | 0.00 | 10040.21 | 12712.20 | 0.00 | 0.00 | -2671.99 |
| 224+50 | 22450.00 | 50.00 | 0.00 | 0.00 | 527.97 | 0.00 | 0.00 | 0.00 | 965.31 | 0.00 | 10040.21 | 13870.57 | 0.00 | 0.00 | -3830.36 |
| 225+00 | 22500.00 | 50.00 | 0.00 | 0.00 | 525.72 | 0.00 | 0.00 | 0.00 | 975.64 | 0.00 | 10040.21 | 15041.33 | 0.00 | 0.00 | -5001.12 |
| 225+50 | 22550.00 | 50.00 | 0.00 | 0.00 | 475.28 | 0.00 | 0.00 | 0.00 | 926.85 | 0.00 | 10040.21 | 16153.55 | 0.00 | 0.00 | -6113.35 |
| 226+00 | 22600.00 | 50.00 | 0.00 | 0.00 | 396.67 | 0.00 | 0.00 | 0.00 | 807.36 | 0.00 | 10040.21 | 17122.39 | 0.00 | 0.00 | -7082.18 |
| 226+50 | 22650.00 | 50.00 | 0.00 | 0.00 | 389.24 | 0.00 | 0.00 | 0.00 | 727.69 | 0.00 | 10040.21 | 17995.62 | 0.00 | 0.00 | -7955.41 |
| 227+00 | 22700.00 | 50.00 | 0.00 | 0.00 | 331.74 | 0.00 | 0.00 | 0.00 | 667.57 | 0.00 | 10040.21 | 18796.71 | 0.00 | 0.00 | -8756.50 |
| 227+50 | 22750.00 | 50.00 | 0.00 | 0.00 | 279.45 | 0.00 | 0.00 | 0.00 | 565.92 | 0.00 | 10040.21 | 19475.81 | 0.00 | 0.00 | -9435.60 |
| 228+00 | 22800.00 | 50.00 | 0.74 | 0.00 | 257.83 | 0.00 | 0.69 | 0.00 | 497.48 | 0.00 | 10040.89 | 20072.79 | 0.00 | 0.00 | -10031.89 |
| 228+50 | 22850.00 | 50.00 | 11.76 | 0.00 | 221.52 | 0.00 | 11.57 | 0.00 | 443.84 | 0.00 | 10052.47 | 20605.40 | 0.00 | 0.00 | -10552.93 |
| 228+62 | 22862.49 | 12.49 | 27.91 | 0.00 | 0.16 | 0.00 | 9.18 | 0.00 | 51.27 | 0.00 | 10061.64 | 20666.93 | 0.00 | 0.00 | -10605.28 |
| 228+76 BK | 22875.79 | 13.30 | 0.00 | 0.00 | 0.00 | 0.00 | 6.87 | 0.00 | 0.04 | 0.00 | 10068.52 | 20666.97 | 0.00 | 0.00 | -10598.46 |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4752
August 17, 2015

(CONTINUED ON NEXT SHEET)



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4752 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew128 PLOT SCALE : 1:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 4753
August 17, 2015

(CONTINUED)

**Division 6 USH 45 SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 230+65 AH | 23064.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 230+76 | 23076.39 | 11.64 | 110.81 | 0.00 | 1.44 | 0.00 | 23.89 | 0.00 | 0.31 | 0.00 | 23.89 | 0.37 | 0.00 | 0.00 | 23.51 |
| 231+00 | 23100.00 | 23.61 | 53.67 | 0.00 | 16.68 | 0.00 | 71.91 | 0.00 | 7.92 | 0.00 | 95.80 | 9.88 | 0.00 | 0.00 | 85.92 |
| 231+50 | 23150.00 | 50.00 | 5.53 | 0.00 | 259.46 | 0.00 | 54.81 | 0.00 | 255.69 | 0.00 | 150.61 | 316.70 | 0.00 | 0.00 | -166.09 |
| 232+00 | 23200.00 | 50.00 | 0.00 | 0.00 | 325.78 | 0.00 | 5.12 | 0.00 | 541.89 | 0.00 | 155.74 | 966.97 | 0.00 | 0.00 | -811.23 |
| 232+50 | 23250.00 | 50.00 | 0.00 | 0.00 | 383.39 | 0.00 | 0.00 | 0.00 | 656.64 | 0.00 | 155.74 | 1754.93 | 0.00 | 0.00 | -1599.20 |
| 233+00 | 23300.00 | 50.00 | 0.00 | 0.00 | 428.93 | 0.00 | 0.00 | 0.00 | 752.15 | 0.00 | 155.74 | 2657.51 | 0.00 | 0.00 | -2501.78 |
| 233+50 | 23350.00 | 50.00 | 0.00 | 0.00 | 473.47 | 0.00 | 0.00 | 0.00 | 835.56 | 0.00 | 155.74 | 3660.18 | 0.00 | 0.00 | -3504.44 |
| 234+00 | 23400.00 | 50.00 | 0.00 | 0.00 | 528.23 | 0.00 | 0.00 | 0.00 | 927.50 | 0.00 | 155.74 | 4773.18 | 0.00 | 0.00 | -4617.44 |
| 234+50 | 23450.00 | 50.00 | 0.00 | 0.00 | 552.60 | 0.00 | 0.00 | 0.00 | 1000.77 | 0.00 | 155.74 | 5974.10 | 0.00 | 0.00 | -5818.37 |
| 235+00 | 23500.00 | 50.00 | 0.00 | 0.00 | 554.18 | 0.00 | 0.00 | 0.00 | 1024.80 | 0.00 | 155.74 | 7203.86 | 0.00 | 0.00 | -7048.12 |
| 235+50 | 23550.00 | 50.00 | 0.15 | 0.00 | 547.10 | 0.00 | 0.14 | 0.00 | 1019.70 | 0.00 | 155.87 | 8427.50 | 0.00 | 0.00 | -8271.63 |
| 236+00 | 23600.00 | 50.00 | 0.28 | 0.00 | 587.06 | 0.00 | 0.40 | 0.00 | 1050.15 | 0.00 | 156.27 | 9687.68 | 0.00 | 0.00 | -9531.41 |
| 236+50 | 23650.00 | 50.00 | 1.58 | 0.00 | 573.54 | 0.00 | 1.72 | 0.00 | 1074.63 | 0.00 | 157.99 | 10977.23 | 0.00 | 0.00 | -10819.24 |
| 237+00 | 23700.00 | 50.00 | 5.87 | 0.00 | 562.04 | 0.00 | 6.90 | 0.00 | 1051.46 | 0.00 | 164.89 | 12238.99 | 0.00 | 0.00 | -12074.10 |
| 237+50 | 23750.00 | 50.00 | 0.00 | 0.00 | 558.67 | 0.00 | 5.44 | 0.00 | 1037.69 | 0.00 | 170.33 | 13484.22 | 0.00 | 0.00 | -13313.90 |
| 238+00 | 23800.00 | 50.00 | 0.00 | 0.00 | 558.03 | 0.00 | 0.00 | 0.00 | 1033.98 | 0.00 | 170.33 | 14725.00 | 0.00 | 0.00 | -14554.67 |
| 238+48 | 23848.00 | 48.00 | 0.00 | 0.00 | 533.64 | 0.00 | 0.00 | 0.00 | 970.37 | 0.00 | 170.33 | 15889.45 | 0.00 | 0.00 | -15719.12 |
| 238+48 | 23848.00 | 0.00 | 0.00 | 0.00 | 373.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 170.33 | 15889.45 | 0.00 | 0.00 | -15719.12 |
| 238+50 | 23850.00 | 2.00 | 0.00 | 0.00 | 372.24 | 0.00 | 0.00 | 0.00 | 27.61 | 0.00 | 170.33 | 15922.59 | 0.00 | 0.00 | -15752.26 |
| 239+00 | 23900.00 | 50.00 | 0.00 | 0.00 | 335.97 | 0.00 | 0.00 | 0.00 | 655.75 | 0.00 | 170.33 | 16709.49 | 0.00 | 0.00 | -16539.16 |
| 239+50 | 23950.00 | 50.00 | 0.00 | 0.00 | 294.59 | 0.00 | 0.00 | 0.00 | 583.85 | 0.00 | 170.33 | 17410.11 | 0.00 | 0.00 | -17239.78 |
| 240+00 | 24000.00 | 50.00 | 0.00 | 0.00 | 248.62 | 0.00 | 0.00 | 0.00 | 502.97 | 0.00 | 170.33 | 18013.68 | 0.00 | 0.00 | -17843.35 |
| 240+50 | 24050.00 | 50.00 | 0.00 | 0.00 | 192.18 | 0.00 | 0.00 | 0.00 | 408.15 | 0.00 | 170.33 | 18503.45 | 0.00 | 0.00 | -18333.13 |
| 241+00 | 24100.00 | 50.00 | 0.00 | 0.00 | 129.87 | 0.00 | 0.00 | 0.00 | 298.19 | 0.00 | 170.33 | 18861.29 | 0.00 | 0.00 | -18690.96 |
| 241+50 | 24150.00 | 50.00 | 3.17 | 0.00 | 78.53 | 0.00 | 2.94 | 0.00 | 192.96 | 0.00 | 173.26 | 19092.84 | 0.00 | 0.00 | -18919.58 |
| 241+87 | 24187.00 | 37.00 | 10.86 | 0.00 | 48.64 | 0.00 | 9.61 | 0.00 | 87.14 | 0.00 | 182.88 | 19197.40 | 0.00 | 0.00 | -19014.53 |
| 241+87 | 24187.00 | 0.00 | 10.89 | 0.00 | 58.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 182.88 | 19197.40 | 0.00 | 0.00 | -19014.53 |
| 242+00 | 24200.00 | 13.00 | 15.02 | 0.00 | 48.81 | 0.00 | 6.24 | 0.00 | 25.88 | 0.00 | 189.11 | 19228.47 | 0.00 | 0.00 | -19039.35 |
| 242+50 | 24250.00 | 50.00 | 30.43 | 0.00 | 15.68 | 0.00 | 42.08 | 0.00 | 59.71 | 0.00 | 231.20 | 19300.12 | 0.00 | 0.00 | -19068.92 |
| 243+00 | 24300.00 | 50.00 | 69.33 | 0.00 | 0.86 | 0.00 | 92.37 | 0.00 | 15.31 | 0.00 | 323.57 | 19318.50 | 0.00 | 0.00 | -18994.93 |
| 243+50 | 24350.00 | 50.00 | 118.95 | 0.00 | 0.00 | 0.00 | 174.33 | 0.00 | 0.80 | 0.00 | 497.90 | 19319.45 | 0.00 | 0.00 | -18821.55 |
| 244+00 | 24400.00 | 50.00 | 164.52 | 0.00 | 0.00 | 0.00 | 262.47 | 0.00 | 0.00 | 0.00 | 760.37 | 19319.45 | 0.00 | 0.00 | -18559.08 |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4753 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew129 PLOT SCALE : 1:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 4754
August 17, 2015

(CONTINUED)

**Division 6 USH 45 SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 244+50 | 24450.00 | 50.00 | 210.29 | 0.00 | 0.00 | 0.00 | 347.05 | 0.00 | 0.00 | 0.00 | 1107.42 | 19319.45 | 0.00 | 0.00 | -18212.04 |
| 245+00 | 24500.00 | 50.00 | 259.21 | 0.00 | 0.01 | 0.00 | 434.72 | 0.00 | 0.01 | 0.00 | 1542.14 | 19319.47 | 0.00 | 0.00 | -17777.32 |
| 245+50 | 24550.00 | 50.00 | 298.10 | 0.00 | 0.00 | 0.00 | 516.03 | 0.00 | 0.01 | 0.00 | 2058.17 | 19319.48 | 0.00 | 0.00 | -17261.31 |
| 246+00 | 24600.00 | 50.00 | 333.44 | 0.00 | 0.00 | 0.00 | 584.76 | 0.00 | 0.00 | 0.00 | 2642.93 | 19319.48 | 0.00 | 0.00 | -16676.55 |
| 246+50 | 24650.00 | 50.00 | 368.24 | 0.00 | 0.00 | 0.00 | 649.70 | 0.00 | 0.00 | 0.00 | 3292.63 | 19319.48 | 0.00 | 0.00 | -16026.84 |
| 247+00 | 24700.00 | 50.00 | 381.64 | 0.00 | 45.68 | 0.00 | 694.33 | 0.00 | 42.30 | 0.00 | 3986.97 | 19370.23 | 0.00 | 0.00 | -15383.27 |
| 247+50 | 24750.00 | 50.00 | 385.51 | 0.00 | 61.76 | 0.00 | 710.32 | 0.00 | 99.48 | 0.00 | 4697.29 | 19489.61 | 0.00 | 0.00 | -14792.32 |
| 248+00 | 24800.00 | 50.00 | 386.76 | 0.00 | 78.75 | 0.00 | 715.06 | 0.00 | 130.10 | 0.00 | 5412.35 | 19645.73 | 0.00 | 0.00 | -14233.38 |
| 248+50 | 24850.00 | 50.00 | 376.23 | 0.00 | 92.00 | 0.00 | 706.47 | 0.00 | 158.10 | 0.00 | 6118.83 | 19835.45 | 0.00 | 0.00 | -13716.63 |
| 249+00 | 24900.00 | 50.00 | 354.45 | 0.00 | 0.00 | 0.00 | 676.56 | 0.00 | 85.19 | 0.00 | 6795.38 | 19937.68 | 0.00 | 0.00 | -13142.29 |
| 249+50 | 24950.00 | 50.00 | 342.99 | 0.00 | 0.00 | 0.00 | 645.78 | 0.00 | 0.00 | 0.00 | 7441.16 | 19937.68 | 0.00 | 0.00 | -12496.52 |
| 250+00 | 25000.00 | 50.00 | 332.61 | 0.00 | 0.00 | 0.00 | 625.56 | 0.00 | 0.00 | 0.00 | 8066.72 | 19937.68 | 0.00 | 0.00 | -11870.96 |
| 250+50 | 25050.00 | 50.00 | 322.96 | 0.00 | 0.00 | 0.00 | 607.01 | 0.00 | 0.00 | 0.00 | 8673.72 | 19937.68 | 0.00 | 0.00 | -11263.95 |
| 251+00 | 25100.00 | 50.00 | 311.54 | 0.00 | 0.00 | 0.00 | 587.50 | 0.00 | 0.00 | 0.00 | 9261.22 | 19937.68 | 0.00 | 0.00 | -10676.45 |
| 251+50 | 25150.00 | 50.00 | 300.95 | 0.00 | 0.00 | 0.00 | 567.12 | 0.00 | 0.00 | 0.00 | 9828.35 | 19937.68 | 0.00 | 0.00 | -10109.33 |
| 252+00 | 25200.00 | 50.00 | 293.98 | 0.00 | 0.00 | 0.00 | 550.86 | 0.00 | 0.00 | 0.00 | 10379.21 | 19937.68 | 0.00 | 0.00 | -9558.47 |
| 252+50 | 25250.00 | 50.00 | 287.76 | 0.00 | 0.00 | 0.00 | 538.65 | 0.00 | 0.00 | 0.00 | 10917.85 | 19937.68 | 0.00 | 0.00 | -9019.82 |
| 253+00 | 25300.00 | 50.00 | 284.67 | 0.00 | 0.00 | 0.00 | 530.03 | 0.00 | 0.00 | 0.00 | 11447.88 | 19937.68 | 0.00 | 0.00 | -8489.79 |
| 253+50 | 25350.00 | 50.00 | 274.21 | 0.00 | 0.00 | 0.00 | 517.48 | 0.00 | 0.00 | 0.00 | 11965.36 | 19937.68 | 0.00 | 0.00 | -7972.31 |
| 254+00 | 25400.00 | 50.00 | 267.01 | 0.00 | 0.00 | 0.00 | 501.13 | 0.00 | 0.00 | 0.00 | 12466.49 | 19937.68 | 0.00 | 0.00 | -7471.18 |
| 254+50 | 25450.00 | 50.00 | 263.96 | 0.00 | 0.00 | 0.00 | 491.64 | 0.00 | 0.00 | 0.00 | 12958.13 | 19937.68 | 0.00 | 0.00 | -6979.54 |
| 255+00 | 25500.00 | 50.00 | 266.22 | 0.00 | 0.00 | 0.00 | 490.91 | 0.00 | 0.00 | 0.00 | 13449.04 | 19937.68 | 0.00 | 0.00 | -6488.64 |
| 255+50 | 25550.00 | 50.00 | 290.66 | 0.00 | 0.00 | 0.00 | 515.63 | 0.00 | 0.00 | 0.00 | 13964.67 | 19937.68 | 0.00 | 0.00 | -5973.01 |
| 256+00 | 25600.00 | 50.00 | 295.31 | 0.00 | 0.00 | 0.00 | 542.56 | 0.00 | 0.00 | 0.00 | 14507.23 | 19937.68 | 0.00 | 0.00 | -5430.44 |
| 256+50 | 25650.00 | 50.00 | 308.05 | 0.00 | 0.00 | 0.00 | 558.67 | 0.00 | 0.00 | 0.00 | 15065.90 | 19937.68 | 0.00 | 0.00 | -4871.78 |
| 256+53 | 25653.00 | 3.00 | 308.84 | 0.00 | 0.00 | 0.00 | 34.27 | 0.00 | 0.00 | 0.00 | 15100.17 | 19937.68 | 0.00 | 0.00 | -4837.50 |
| 256+53 | 25653.00 | 0.00 | 163.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 15100.17 | 19937.68 | 0.00 | 0.00 | -4837.50 |
| 257+00 | 25700.00 | 47.00 | 164.52 | 0.00 | 0.00 | 0.00 | 285.57 | 0.00 | 0.00 | 0.00 | 15385.74 | 19937.68 | 0.00 | 0.00 | -4551.94 |
| 257+00 | 25700.00 | 0.00 | 99.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 15385.74 | 19937.68 | 0.00 | 0.00 | -4551.94 |
| 257+50 | 25750.00 | 50.00 | 100.71 | 0.00 | 0.00 | 0.00 | 185.48 | 0.00 | 0.00 | 0.00 | 15571.22 | 19937.68 | 0.00 | 0.00 | -4366.45 |
| 258+00 | 25800.00 | 50.00 | 102.61 | 0.00 | 0.00 | 0.00 | 188.26 | 0.00 | 0.00 | 0.00 | 15759.48 | 19937.68 | 0.00 | 0.00 | -4178.20 |
| 258+50 | 25850.00 | 50.00 | 103.59 | 0.00 | 0.00 | 0.00 | 190.93 | 0.00 | 0.00 | 0.00 | 15950.41 | 19937.68 | 0.00 | 0.00 | -3987.27 |
| 259+00 | 25900.00 | 50.00 | 104.84 | 0.00 | 0.00 | 0.00 | 192.99 | 0.00 | 0.00 | 0.00 | 16143.40 | 19937.68 | 0.00 | 0.00 | -3794.28 |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4754 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew130 PLOT SCALE : 1:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 4755
August 17, 2015

(CONTINUED)

**Division 6 USH 45 SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 259+50 | 25950.00 | 50.00 | 104.06 | 0.00 | 0.00 | 0.00 | 193.43 | 0.00 | 0.00 | 0.00 | 16336.82 | 19937.68 | 0.00 | 0.00 | -3600.85 |
| 260+00 | 26000.00 | 50.00 | 100.76 | 0.00 | 0.00 | 0.00 | 189.65 | 0.00 | 0.00 | 0.00 | 16526.47 | 19937.68 | 0.00 | 0.00 | -3411.20 |
| 260+50 | 26050.00 | 50.00 | 99.37 | 0.00 | 0.00 | 0.00 | 185.31 | 0.00 | 0.00 | 0.00 | 16711.78 | 19937.68 | 0.00 | 0.00 | -3225.90 |
| 261+00 | 26100.00 | 50.00 | 95.97 | 0.00 | 0.00 | 0.00 | 180.87 | 0.00 | 0.00 | 0.00 | 16892.65 | 19937.68 | 0.00 | 0.00 | -3045.03 |
| 261+00 | 26100.00 | 0.00 | 150.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 16892.65 | 19937.68 | 0.00 | 0.00 | -3045.03 |
| 261+50 | 26150.00 | 50.00 | 145.90 | 0.00 | 0.00 | 0.00 | 274.38 | 0.00 | 0.00 | 0.00 | 17167.03 | 19937.68 | 0.00 | 0.00 | -2770.65 |
| 262+00 | 26200.00 | 50.00 | 138.75 | 0.00 | 0.00 | 0.00 | 263.56 | 0.00 | 0.00 | 0.00 | 17430.59 | 19937.68 | 0.00 | 0.00 | -2507.08 |
| 262+50 | 26250.00 | 50.00 | 138.49 | 0.00 | 0.00 | 0.00 | 256.70 | 0.00 | 0.00 | 0.00 | 17687.30 | 19937.68 | 0.00 | 0.00 | -2250.38 |
| 263+00 | 26300.00 | 50.00 | 131.68 | 0.00 | 0.00 | 0.00 | 250.16 | 0.00 | 0.00 | 0.00 | 17937.45 | 19937.68 | 0.00 | 0.00 | -2000.22 |
| 263+50 | 26350.00 | 50.00 | 125.59 | 0.00 | 0.00 | 0.00 | 238.21 | 0.00 | 0.00 | 0.00 | 18175.67 | 19937.68 | 0.00 | 0.00 | -1762.01 |
| 264+00 | 26400.00 | 50.00 | 122.46 | 0.00 | 0.00 | 0.00 | 229.68 | 0.00 | 0.00 | 0.00 | 18405.34 | 19937.68 | 0.00 | 0.00 | -1532.33 |
| 264+31 | 26431.00 | 31.00 | 119.51 | 0.00 | 0.08 | 0.00 | 138.91 | 0.00 | 0.05 | 0.00 | 18544.25 | 19937.73 | 0.00 | 0.00 | -1393.48 |
| 264+31 | 26431.00 | 0.00 | 150.47 | 0.00 | 0.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 18544.25 | 19937.73 | 0.00 | 0.00 | -1393.48 |
| 264+50 | 26450.00 | 19.00 | 148.68 | 0.00 | 0.38 | 0.00 | 105.26 | 0.00 | 0.30 | 0.00 | 18649.51 | 19938.10 | 0.00 | 0.00 | -1288.59 |
| 265+00 | 26500.00 | 50.00 | 145.79 | 0.00 | 0.14 | 0.00 | 272.66 | 0.00 | 0.48 | 0.00 | 18922.17 | 19938.67 | 0.00 | 0.00 | -1016.51 |
| 265+50 | 26550.00 | 50.00 | 144.55 | 0.00 | 0.20 | 0.00 | 268.83 | 0.00 | 0.31 | 0.00 | 19191.00 | 19939.05 | 0.00 | 0.00 | -748.05 |
| 266+00 | 26600.00 | 50.00 | 137.87 | 0.00 | 0.30 | 0.00 | 261.50 | 0.00 | 0.46 | 0.00 | 19452.50 | 19939.61 | 0.00 | 0.00 | -487.11 |
| 266+50 | 26650.00 | 50.00 | 130.12 | 0.00 | 0.48 | 0.00 | 248.14 | 0.00 | 0.72 | 0.00 | 19700.64 | 19940.47 | 0.00 | 0.00 | -239.84 |
| 267+00 | 26700.00 | 50.00 | 121.37 | 0.00 | 0.61 | 0.00 | 232.86 | 0.00 | 1.01 | 0.00 | 19933.50 | 19941.68 | 0.00 | 0.00 | -8.19 |
| 267+50 | 26750.00 | 50.00 | 111.85 | 0.00 | 0.70 | 0.00 | 215.94 | 0.00 | 1.21 | 0.00 | 20149.44 | 19943.14 | 0.00 | 0.00 | 206.30 |
| 268+00 | 26800.00 | 50.00 | 100.23 | 0.00 | 0.92 | 0.00 | 196.37 | 0.00 | 1.50 | 0.00 | 20345.81 | 19944.94 | 0.00 | 0.00 | 400.87 |
| 268+50 | 26850.00 | 50.00 | 89.04 | 0.00 | 0.00 | 0.00 | 175.25 | 0.00 | 0.85 | 0.00 | 20521.06 | 19945.96 | 0.00 | 0.00 | 575.10 |
| 269+00 | 26900.00 | 50.00 | 74.97 | 0.00 | 0.00 | 0.00 | 151.86 | 0.00 | 0.00 | 0.00 | 20672.92 | 19945.96 | 0.00 | 0.00 | 726.96 |
| 269+00 | 26900.00 | 0.00 | 56.47 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 20672.92 | 19945.96 | 0.00 | 0.00 | 726.96 |
| 269+50 | 26950.00 | 50.00 | 44.41 | 0.00 | 0.01 | 0.00 | 93.41 | 0.00 | 0.05 | 0.00 | 20766.33 | 19946.02 | 0.00 | 0.00 | 820.31 |
| 270+00 | 27000.00 | 50.00 | 31.48 | 0.00 | 0.01 | 0.00 | 70.27 | 0.00 | 0.02 | 0.00 | 20836.60 | 19946.04 | 0.00 | 0.00 | 890.56 |
| 270+50 | 27050.00 | 50.00 | 18.50 | 0.00 | 0.32 | 0.00 | 46.28 | 0.00 | 0.31 | 0.00 | 20882.88 | 19946.41 | 0.00 | 0.00 | 936.47 |
| 271+00 | 27100.00 | 50.00 | 9.52 | 0.00 | 4.00 | 0.00 | 25.94 | 0.00 | 4.00 | 0.00 | 20908.82 | 19951.21 | 0.00 | 0.00 | 957.62 |
| 271+50 | 27150.00 | 50.00 | 3.68 | 0.00 | 14.64 | 0.00 | 12.22 | 0.00 | 17.26 | 0.00 | 20921.05 | 19971.92 | 0.00 | 0.00 | 949.13 |
| 272+00 | 27200.00 | 50.00 | 1.81 | 0.00 | 25.17 | 0.00 | 5.08 | 0.00 | 36.86 | 0.00 | 20926.13 | 20016.15 | 0.00 | 0.00 | 909.98 |
| 272+50 | 27250.00 | 50.00 | 2.77 | 0.00 | 36.40 | 0.00 | 4.24 | 0.00 | 57.01 | 0.00 | 20930.37 | 20084.56 | 0.00 | 0.00 | 845.81 |
| 273+00 | 27300.00 | 50.00 | 7.61 | 0.00 | 47.06 | 0.00 | 9.61 | 0.00 | 77.28 | 0.00 | 20939.98 | 20177.30 | 0.00 | 0.00 | 762.68 |
| 273+22 | 27322.00 | 22.00 | 10.51 | 0.00 | 53.21 | 0.00 | 7.38 | 0.00 | 40.85 | 0.00 | 20947.36 | 20226.32 | 0.00 | 0.00 | 721.05 |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4755 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew131 PLOT SCALE : 1:1

(CONTINUED)

**Division 6 USH 45 SB**

| STATION | | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 273+22 | | 27322.00 | 0.00 | 10.50 | 0.00 | 67.44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 20947.36 | 20226.32 | 0.00 | 0.00 | 721.05 |
| 273+50 | | 27350.00 | 28.00 | 14.25 | 0.00 | 87.67 | 0.00 | 12.83 | 0.00 | 80.43 | 0.00 | 20960.20 | 20322.83 | 0.00 | 0.00 | 637.37 |
| 274+00 | | 27400.00 | 50.00 | 19.36 | 0.00 | 112.98 | 0.00 | 31.12 | 0.00 | 185.79 | 0.00 | 20991.32 | 20545.77 | 0.00 | 0.00 | 445.54 |
| 274+50 | | 27450.00 | 50.00 | 19.81 | 0.00 | 126.45 | 0.00 | 36.27 | 0.00 | 221.69 | 0.00 | 21027.58 | 20811.81 | 0.00 | 0.00 | 215.78 |
| 275+00 | | 27500.00 | 50.00 | 17.20 | 0.00 | 133.01 | 0.00 | 34.27 | 0.00 | 240.24 | 0.00 | 21061.85 | 21100.10 | 0.00 | 0.00 | -38.24 |
| 275+50 | | 27550.00 | 50.00 | 13.08 | 0.00 | 134.55 | 0.00 | 28.04 | 0.00 | 247.74 | 0.00 | 21089.89 | 21397.38 | 0.00 | 0.00 | -307.49 |
| 276+00 | | 27600.00 | 50.00 | 12.08 | 0.00 | 137.05 | 0.00 | 23.30 | 0.00 | 251.48 | 0.00 | 21113.19 | 21699.16 | 0.00 | 0.00 | -585.98 |
| 276+50 | | 27650.00 | 50.00 | 11.03 | 0.00 | 125.06 | 0.00 | 21.40 | 0.00 | 242.69 | 0.00 | 21134.58 | 21990.40 | 0.00 | 0.00 | -855.81 |
| 277+00 | | 27700.00 | 50.00 | 10.49 | 0.00 | 103.01 | 0.00 | 19.93 | 0.00 | 211.18 | 0.00 | 21154.51 | 22243.81 | 0.00 | 0.00 | -1089.30 |
| 277+50 | | 27750.00 | 50.00 | 11.63 | 0.00 | 89.08 | 0.00 | 20.48 | 0.00 | 177.86 | 0.00 | 21174.99 | 22457.24 | 0.00 | 0.00 | -1282.25 |
| 278+00 | | 27800.00 | 50.00 | 14.26 | 0.00 | 75.27 | 0.00 | 23.97 | 0.00 | 152.18 | 0.00 | 21198.96 | 22639.85 | 0.00 | 0.00 | -1440.89 |
| 278+50 | | 27850.00 | 50.00 | 23.80 | 0.00 | 60.29 | 0.00 | 35.24 | 0.00 | 125.52 | 0.00 | 21234.21 | 22790.47 | 0.00 | 0.00 | -1556.27 |
| 279+00 | | 27900.00 | 50.00 | 29.25 | 0.00 | 45.52 | 0.00 | 49.12 | 0.00 | 97.97 | 0.00 | 21283.33 | 22908.04 | 0.00 | 0.00 | -1624.71 |
| 279+50 | | 27950.00 | 50.00 | 5.97 | 0.00 | 440.05 | 0.00 | 32.61 | 0.00 | 449.60 | 0.00 | 21315.94 | 23447.56 | 0.00 | 0.00 | -2131.63 |
| 279+69 | | 27968.98 | 18.98 | 6.02 | 0.00 | 682.51 | 0.00 | 4.21 | 0.00 | 394.56 | 0.00 | 21320.15 | 23921.03 | 0.00 | 0.00 | -2600.88 |
| 279+75 | BK | 27974.87 | 5.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.66 | 0.00 | 74.44 | 0.00 | 21320.81 | 24010.37 | 0.00 | 0.00 | -2689.56 |
| 280+49 | AH | 28049.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 280+56 | | 28056.27 | 7.08 | 0.00 | 0.00 | 947.81 | 0.00 | 0.00 | 0.00 | 124.27 | 0.00 | 0.00 | 149.12 | 0.00 | 0.00 | -149.12 |
| 281+00 | | 28100.00 | 43.73 | 114.36 | 0.00 | 21.14 | 0.00 | 92.61 | 0.00 | 784.67 | 0.00 | 92.61 | 1090.73 | 0.00 | 0.00 | -998.12 |
| 281+50 | | 28150.00 | 50.00 | 153.02 | 0.00 | 30.39 | 0.00 | 247.57 | 0.00 | 47.71 | 0.00 | 340.18 | 1147.98 | 0.00 | 0.00 | -807.80 |
| 282+00 | | 28200.00 | 50.00 | 143.88 | 0.00 | 49.44 | 0.00 | 274.91 | 0.00 | 73.92 | 0.00 | 615.09 | 1236.68 | 0.00 | 0.00 | -621.59 |
| 282+50 | | 28250.00 | 50.00 | 149.41 | 0.00 | 75.87 | 0.00 | 271.56 | 0.00 | 116.03 | 0.00 | 886.66 | 1375.92 | 0.00 | 0.00 | -489.26 |
| 283+00 | | 28300.00 | 50.00 | 126.26 | 0.00 | 52.85 | 0.00 | 255.25 | 0.00 | 119.19 | 0.00 | 1141.91 | 1518.94 | 0.00 | 0.00 | -377.03 |
| 283+50 | | 28350.00 | 50.00 | 129.36 | 0.00 | 9.36 | 0.00 | 236.69 | 0.00 | 57.60 | 0.00 | 1378.59 | 1588.06 | 0.00 | 0.00 | -209.47 |
| 284+00 | | 28400.00 | 50.00 | 317.83 | 0.00 | 33.54 | 0.00 | 414.06 | 0.00 | 39.72 | 0.00 | 1792.66 | 1635.73 | 0.00 | 0.00 | 156.93 |
| 284+50 | | 28450.00 | 50.00 | 318.40 | 0.00 | 86.10 | 0.00 | 589.10 | 0.00 | 110.78 | 0.00 | 2381.76 | 1768.66 | 0.00 | 0.00 | 613.10 |
| 284+94 | | 28493.85 | 43.85 | 0.78 | 0.00 | 482.46 | 0.00 | 259.19 | 0.00 | 461.69 | 0.00 | 2640.94 | 2322.69 | 0.00 | 0.00 | 318.25 |
| 285+06 | BK | 28506.37 | 12.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.18 | 0.00 | 111.86 | 0.00 | 2641.13 | 2456.92 | 0.00 | 0.00 | 184.20 |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4756
August 17, 2015

(CONTINUED ON NEXT SHEET)



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4756 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew132 PLOT SCALE : 1:1

(CONTINUED)

**Division 6 USH 45 SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Salvaged/ Unusable Pavement Material Note 2 | Fill Note 3 | EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Expanded Fill 1.2 | Expanded EBS Backfill 1.30 Note 4 | Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 286+16 AH | 28616.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 286+31 | 28631.21 | 15.05 | 1.01 | 0.00 | 183.31 | 0.00 | 0.28 | 0.00 | 51.09 | 0.00 | 0.28 | 61.31 | 0.00 | 0.00 | -61.03 |
| 286+50 | 28650.00 | 18.79 | 102.53 | 0.00 | 32.20 | 0.00 | 36.03 | 0.00 | 74.99 | 0.00 | 36.31 | 151.29 | 0.00 | 0.00 | -114.98 |
| 287+00 | 28700.00 | 50.00 | 121.84 | 0.00 | 16.59 | 0.00 | 207.75 | 0.00 | 45.18 | 0.00 | 244.06 | 205.51 | 0.00 | 0.00 | 38.55 |
| 287+50 | 28750.00 | 50.00 | 110.79 | 0.00 | 3.47 | 0.00 | 215.40 | 0.00 | 18.57 | 0.00 | 459.46 | 227.79 | 0.00 | 0.00 | 231.66 |
| 287+73 | 28773.00 | 23.00 | 104.45 | 0.00 | 1.20 | 0.00 | 91.68 | 0.00 | 1.99 | 0.00 | 551.13 | 230.18 | 0.00 | 0.00 | 320.95 |
| 287+73 | 28773.00 | 0.00 | 88.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 551.13 | 230.18 | 0.00 | 0.00 | 320.95 |
| 288+00 | 28800.00 | 27.00 | 83.84 | 0.00 | 0.00 | 0.00 | 86.28 | 0.00 | 0.00 | 0.00 | 637.41 | 230.18 | 0.00 | 0.00 | 407.23 |
| 288+50 | 28850.00 | 50.00 | 42.60 | 0.00 | 6.64 | 0.00 | 117.07 | 0.00 | 6.15 | 0.00 | 754.48 | 237.56 | 0.00 | 0.00 | 516.92 |
| 289+00 | 28900.00 | 50.00 | 4.71 | 0.00 | 177.81 | 0.00 | 43.81 | 0.00 | 170.79 | 0.00 | 798.29 | 442.50 | 0.00 | 0.00 | 355.79 |
| 289+50 | 28950.00 | 50.00 | 0.08 | 0.00 | 1087.36 | 0.00 | 4.44 | 0.00 | 1171.45 | 0.00 | 802.72 | 1848.25 | 0.00 | 0.00 | -1045.52 |
| 290+00 | 29000.00 | 50.00 | 0.00 | 0.00 | 1373.66 | 0.00 | 0.07 | 0.00 | 2278.72 | 0.00 | 802.80 | 4582.71 | 0.00 | 0.00 | -3779.92 |
| 290+39 | 29039.00 | 39.00 | 0.00 | 0.00 | 1168.18 | 0.00 | 0.00 | 0.00 | 1835.77 | 0.00 | 802.80 | 6785.64 | 0.00 | 0.00 | -5982.84 |
| 290+39 | 29039.00 | 0.00 | 0.00 | 0.00 | 1484.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 802.80 | 6785.64 | 0.00 | 0.00 | -5982.84 |
| 290+50 | 29050.00 | 11.00 | 0.00 | 0.00 | 1376.94 | 0.00 | 0.00 | 0.00 | 582.81 | 0.00 | 802.80 | 7485.02 | 0.00 | 0.00 | -6682.22 |
| 291+00 | 29100.00 | 50.00 | 0.11 | 0.00 | 792.68 | 0.00 | 0.10 | 0.00 | 2008.91 | 0.00 | 802.90 | 9895.70 | 0.00 | 0.00 | -9092.80 |
| 291+40 | 29140.19 | 40.19 | 0.10 | 0.00 | 718.72 | 0.00 | 0.16 | 0.00 | 1124.87 | 0.00 | 803.06 | 11245.55 | 0.00 | 0.00 | -10442.50 |
| 291+82 BK | 29181.69 | 41.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 | 552.35 | 0.00 | 803.13 | 11908.37 | 0.00 | 0.00 | -11105.24 |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4757
August 17, 2015

(CONTINUED ON NEXT SHEET)



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4757 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew133 PLOT SCALE : 1:1

(CONTINUED)

**Division 6 USH 45 SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 294+15 AH | 29415.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 294+57 | 29456.57 | 41.49 | 0.00 | 0.00 | 747.93 | 0.00 | 0.00 | 0.00 | 574.66 | 0.00 | 0.00 | 689.59 | 0.00 | 0.00 | -689.59 |
| 295+00 | 29500.00 | 43.43 | 0.00 | 0.00 | 538.86 | 0.00 | 0.00 | 0.00 | 1034.91 | 0.00 | 0.00 | 1931.49 | 0.00 | 0.00 | -1931.49 |
| 295+50 | 29550.00 | 50.00 | 0.11 | 0.00 | 679.20 | 0.00 | 0.10 | 0.00 | 1127.83 | 0.00 | 0.10 | 3284.89 | 0.00 | 0.00 | -3284.78 |
| 296+00 | 29600.00 | 50.00 | 0.11 | 0.00 | 1430.78 | 0.00 | 0.20 | 0.00 | 1953.69 | 0.00 | 0.31 | 5629.31 | 0.00 | 0.00 | -5629.00 |
| 296+50 | 29650.00 | 50.00 | 0.00 | 0.00 | 1917.93 | 0.00 | 0.10 | 0.00 | 3100.66 | 0.00 | 0.41 | 9350.10 | 0.00 | 0.00 | -9349.69 |
| 297+00 | 29700.00 | 50.00 | 74.63 | 0.00 | 872.25 | 0.00 | 69.10 | 0.00 | 2583.50 | 0.00 | 69.51 | 12450.30 | 0.00 | 0.00 | -12380.79 |
| 297+50 | 29750.00 | 50.00 | 331.56 | 0.00 | 92.33 | 0.00 | 376.10 | 0.00 | 893.13 | 0.00 | 445.61 | 13522.05 | 0.00 | 0.00 | -13076.44 |
| 298+00 | 29800.00 | 50.00 | 494.10 | 0.00 | 3.56 | 0.00 | 764.50 | 0.00 | 88.79 | 0.00 | 1210.11 | 13628.60 | 0.00 | 0.00 | -12418.49 |
| 298+50 | 29850.00 | 50.00 | 654.25 | 0.00 | 2.52 | 0.00 | 1063.29 | 0.00 | 5.63 | 0.00 | 2273.40 | 13635.35 | 0.00 | 0.00 | -11361.96 |
| 299+00 | 29900.00 | 50.00 | 690.47 | 0.00 | 2.50 | 0.00 | 1245.11 | 0.00 | 4.65 | 0.00 | 3518.51 | 13640.93 | 0.00 | 0.00 | -10122.42 |
| 299+50 | 29950.00 | 50.00 | 745.97 | 0.00 | 2.50 | 0.00 | 1330.04 | 0.00 | 4.63 | 0.00 | 4848.55 | 13646.49 | 0.00 | 0.00 | -8797.94 |
| 300+00 | 30000.00 | 50.00 | 765.16 | 0.00 | 2.67 | 0.00 | 1399.19 | 0.00 | 4.79 | 0.00 | 6247.74 | 13652.23 | 0.00 | 0.00 | -7404.49 |
| 300+50 | 30050.00 | 50.00 | 716.75 | 0.00 | 8.45 | 0.00 | 1372.14 | 0.00 | 10.30 | 0.00 | 7619.88 | 13664.59 | 0.00 | 0.00 | -6044.71 |
| 301+00 | 30100.00 | 50.00 | 691.30 | 0.00 | 8.75 | 0.00 | 1303.75 | 0.00 | 15.93 | 0.00 | 8923.63 | 13683.70 | 0.00 | 0.00 | -4760.07 |
| 301+50 | 30150.00 | 50.00 | 511.41 | 0.00 | 12.60 | 0.00 | 1113.62 | 0.00 | 19.77 | 0.00 | 10037.25 | 13707.42 | 0.00 | 0.00 | -3670.17 |
| 302+00 | 30200.00 | 50.00 | 379.63 | 0.00 | 22.26 | 0.00 | 825.04 | 0.00 | 32.28 | 0.00 | 10862.29 | 13746.15 | 0.00 | 0.00 | -2883.87 |
| 302+50 | 30250.00 | 50.00 | 312.84 | 0.00 | 10.16 | 0.00 | 641.18 | 0.00 | 30.02 | 0.00 | 11503.46 | 13782.18 | 0.00 | 0.00 | -2278.71 |
| 302+68 | 30268.00 | 18.00 | 293.03 | 0.00 | 8.33 | 0.00 | 201.96 | 0.00 | 6.16 | 0.00 | 11705.42 | 13789.57 | 0.00 | 0.00 | -2084.15 |
| 302+68 | 30268.00 | 0.00 | 220.28 | 0.00 | 8.42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 11705.42 | 13789.57 | 0.00 | 0.00 | -2084.15 |
| 303+00 | 30300.00 | 32.00 | 196.64 | 0.00 | 10.15 | 0.00 | 247.06 | 0.00 | 11.00 | 0.00 | 11952.48 | 13802.78 | 0.00 | 0.00 | -1850.29 |
| 303+50 | 30350.00 | 50.00 | 156.16 | 0.00 | 11.49 | 0.00 | 326.67 | 0.00 | 20.04 | 0.00 | 12279.15 | 13826.82 | 0.00 | 0.00 | -1547.67 |
| 304+00 | 30400.00 | 50.00 | 122.46 | 0.00 | 11.80 | 0.00 | 257.98 | 0.00 | 21.56 | 0.00 | 12537.13 | 13852.70 | 0.00 | 0.00 | -1315.57 |
| 304+45 BK | 30445.45 | 45.45 | 104.42 | 0.00 | 0.80 | 0.00 | 190.96 | 0.00 | 10.61 | 0.00 | 12728.09 | 13865.43 | 0.00 | 0.00 | -1137.34 |
| | | Column totals | | | | | 48051.08 | 0.00 | 60886.79 | 0.00 | | | | | |

1

Addendum No. 01
ID 1060-33-81
Revised Sheet 4758
August 17, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |




FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/13/2015 11:59:01 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew134 PLOT SCALE : 1:1

(CONTINUED)

**Division 6 IH 94 WB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 148+65 | 14865.00 | 0.00 | 183.74 | 0.00 | 39.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4753.10 | 15808.14 | 0.00 | 0.00 | -11055.04 |
| 149+00 | 14900.00 | 35.00 | 153.15 | 0.00 | 6.98 | 0.00 | 218.35 | 0.00 | 30.42 | 0.00 | 4971.45 | 15844.64 | 0.00 | 0.00 | -10873.19 |
| 149+50 | 14950.00 | 50.00 | 150.75 | 0.00 | 4.16 | 0.00 | 281.39 | 0.00 | 10.31 | 0.00 | 5252.84 | 15857.02 | 0.00 | 0.00 | -10604.17 |
| 150+00 | 15000.00 | 50.00 | 151.76 | 0.00 | 0.53 | 0.00 | 280.10 | 0.00 | 4.34 | 0.00 | 5532.94 | 15862.23 | 0.00 | 0.00 | -10329.28 |
| 150+09 | 15008.73 | 8.73 | 153.00 | 0.00 | 0.30 | 0.00 | 49.27 | 0.00 | 0.13 | 0.00 | 5582.21 | 15862.39 | 0.00 | 0.00 | -10280.17 |
| 150+50 | 15050.00 | 41.27 | 153.65 | 0.00 | 0.17 | 0.00 | 233.56 | 0.00 | 0.51 | 0.00 | 5766.51 | 15862.84 | 0.00 | 0.00 | -10096.33 |
| 151+00 | 15100.00 | 50.00 | 157.48 | 0.00 | 0.00 | 0.00 | 288.08 | 0.00 | 0.16 | 0.00 | 6054.59 | 15863.03 | 0.00 | 0.00 | -9808.44 |
| 151+50 | 15150.00 | 50.00 | 157.64 | 0.00 | 0.00 | 0.00 | 291.78 | 0.00 | 0.00 | 0.00 | 6346.37 | 15863.03 | 0.00 | 0.00 | -9516.66 |
| 152+00 | 15200.00 | 50.00 | 146.56 | 0.00 | 0.50 | 0.00 | 281.67 | 0.00 | 0.46 | 0.00 | 6628.04 | 15863.58 | 0.00 | 0.00 | -9235.55 |
| 152+50 | 15250.00 | 50.00 | 136.11 | 0.00 | 1.92 | 0.00 | 261.73 | 0.00 | 2.24 | 0.00 | 6889.77 | 15866.27 | 0.00 | 0.00 | -8976.51 |
| 153+00 | 15300.00 | 50.00 | 127.38 | 0.00 | 2.99 | 0.00 | 243.97 | 0.00 | 4.55 | 0.00 | 7133.74 | 15871.73 | 0.00 | 0.00 | -8737.99 |
| 153+50 | 15350.00 | 50.00 | 127.45 | 0.00 | 4.01 | 0.00 | 235.95 | 0.00 | 6.48 | 0.00 | 7369.69 | 15879.51 | 0.00 | 0.00 | -8509.81 |
| 154+00 | 15400.00 | 50.00 | 141.96 | 0.00 | 5.35 | 0.00 | 249.45 | 0.00 | 8.67 | 0.00 | 7619.15 | 15889.91 | 0.00 | 0.00 | -8270.76 |
| 154+50 | 15450.00 | 50.00 | 165.31 | 0.00 | 0.00 | 0.00 | 284.51 | 0.00 | 4.95 | 0.00 | 7903.66 | 15895.85 | 0.00 | 0.00 | -7992.20 |
| 154+74 | 15474.19 | 24.19 | 174.59 | 0.00 | 0.00 | 0.00 | 152.26 | 0.00 | 0.00 | 0.00 | 8055.92 | 15895.85 | 0.00 | 0.00 | -7839.93 |
| 154+74 | 15474.19 | 0.00 | 174.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 8055.92 | 15895.85 | 0.00 | 0.00 | -7839.93 |
| 155+00 | 15500.00 | 25.81 | 223.96 | 0.00 | 0.00 | 0.00 | 190.50 | 0.00 | 0.00 | 0.00 | 8246.42 | 15895.85 | 0.00 | 0.00 | -7649.44 |
| 155+50 | 15550.00 | 50.00 | 251.24 | 0.00 | 0.00 | 0.00 | 440.00 | 0.00 | 0.00 | 0.00 | 8686.42 | 15895.85 | 0.00 | 0.00 | -7209.44 |
| 156+00 | 15600.00 | 50.00 | 275.39 | 0.00 | 0.00 | 0.00 | 487.62 | 0.00 | 0.00 | 0.00 | 9174.04 | 15895.85 | 0.00 | 0.00 | -6721.82 |
| 156+50 | 15650.00 | 50.00 | 311.03 | 0.00 | 0.00 | 0.00 | 542.98 | 0.00 | 0.00 | 0.00 | 9717.02 | 15895.85 | 0.00 | 0.00 | -6178.83 |
| 157+00 | 15700.00 | 50.00 | 332.47 | 0.00 | 0.07 | 0.00 | 595.83 | 0.00 | 0.06 | 0.00 | 10312.85 | 15895.93 | 0.00 | 0.00 | -5583.08 |
| 157+50 | 15750.00 | 50.00 | 344.19 | 0.00 | 1.82 | 0.00 | 626.54 | 0.00 | 1.75 | 0.00 | 10939.39 | 15898.03 | 0.00 | 0.00 | -4958.64 |
| 158+00 | 15800.00 | 50.00 | 377.00 | 0.00 | 2.94 | 0.00 | 667.77 | 0.00 | 4.41 | 0.00 | 11607.16 | 15903.32 | 0.00 | 0.00 | -4296.16 |
| 158+50 | 15850.00 | 50.00 | 400.02 | 0.00 | 5.25 | 0.00 | 719.46 | 0.00 | 7.58 | 0.00 | 12326.62 | 15912.42 | 0.00 | 0.00 | -3585.80 |
| 159+00 | 15900.00 | 50.00 | 439.52 | 0.00 | 5.74 | 0.00 | 777.35 | 0.00 | 10.18 | 0.00 | 13103.97 | 15924.63 | 0.00 | 0.00 | -2820.66 |
| 159+26 | 15925.84 | 25.84 | 477.47 | 0.00 | 2.29 | 0.00 | 438.80 | 0.00 | 3.84 | 0.00 | 13542.77 | 15929.24 | 0.00 | 0.00 | -2386.47 |
| 159+26 | 15925.84 | 0.00 | 233.15 | 0.00 | 2.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 13542.77 | 15929.24 | 0.00 | 0.00 | -2386.47 |
| 159+50 | 15950.00 | 24.16 | 255.38 | 0.00 | 2.35 | 0.00 | 218.57 | 0.00 | 2.08 | 0.00 | 13761.34 | 15931.73 | 0.00 | 0.00 | -2170.39 |
| 160+00 | 16000.00 | 50.00 | 266.34 | 0.00 | 2.48 | 0.00 | 483.07 | 0.00 | 4.47 | 0.00 | 14244.41 | 15937.10 | 0.00 | 0.00 | -1692.68 |
| 160+50 | 16050.00 | 50.00 | 261.69 | 0.00 | 2.61 | 0.00 | 488.92 | 0.00 | 4.71 | 0.00 | 14733.33 | 15942.75 | 0.00 | 0.00 | -1209.42 |
| 161+00 | 16100.00 | 50.00 | 274.49 | 0.00 | 2.88 | 0.00 | 496.46 | 0.00 | 5.08 | 0.00 | 15229.79 | 15948.85 | 0.00 | 0.00 | -719.06 |

1

Addendum No. 01
ID 1060-33-81
Revised Sheet 4765
August 17, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4765 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew141 PLOT SCALE : 1:1

(CONTINUED)

**Division 6 IH 94 WB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 161+50 | 16150.00 | 50.00 | 264.08 | 0.00 | 0.77 | 0.00 | 498.68 | 0.00 | 3.38 | 0.00 | 15728.47 | 15952.91 | 0.00 | 0.00 | -224.44 |
| 162+00 | 16200.00 | 50.00 | 244.13 | 0.00 | 0.13 | 0.00 | 470.56 | 0.00 | 0.83 | 0.00 | 16199.03 | 15953.91 | 0.00 | 0.00 | 245.13 |
| 162+50 | 16250.00 | 50.00 | 229.57 | 0.00 | 0.14 | 0.00 | 438.61 | 0.00 | 0.25 | 0.00 | 16637.64 | 15954.21 | 0.00 | 0.00 | 683.44 |
| 163+00 | 16300.00 | 50.00 | 225.25 | 0.00 | 0.01 | 0.00 | 421.13 | 0.00 | 0.14 | 0.00 | 17058.77 | 15954.38 | 0.00 | 0.00 | 1104.40 |
| 163+44 | 16343.92 | 43.92 | 221.67 | 0.00 | 0.00 | 0.00 | 363.49 | 0.00 | 0.01 | 0.00 | 17422.27 | 15954.38 | 0.00 | 0.00 | 1467.88 |
| 163+44 | 16343.92 | 0.00 | 296.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 17422.27 | 15954.38 | 0.00 | 0.00 | 1467.88 |
| 163+50 | 16350.00 | 6.08 | 298.74 | 0.00 | 0.00 | 0.00 | 67.05 | 0.00 | 0.00 | 0.00 | 17489.32 | 15954.38 | 0.00 | 0.00 | 1534.94 |
| 164+00 | 16400.00 | 50.00 | 295.29 | 0.00 | 4.06 | 0.00 | 550.03 | 0.00 | 3.76 | 0.00 | 18039.35 | 15958.90 | 0.00 | 0.00 | 2080.45 |
| 164+50 | 16450.00 | 50.00 | 283.36 | 0.00 | 6.99 | 0.00 | 535.79 | 0.00 | 10.23 | 0.00 | 18575.14 | 15971.17 | 0.00 | 0.00 | 2603.96 |
| 165+00 | 16500.00 | 50.00 | 276.79 | 0.00 | 7.76 | 0.00 | 518.66 | 0.00 | 13.66 | 0.00 | 19093.79 | 15987.56 | 0.00 | 0.00 | 3106.23 |
| 165+50 | 16550.00 | 50.00 | 276.15 | 0.00 | 7.84 | 0.00 | 511.98 | 0.00 | 14.44 | 0.00 | 19605.77 | 16004.90 | 0.00 | 0.00 | 3600.88 |
| 166+00 | 16600.00 | 50.00 | 261.85 | 0.00 | 9.69 | 0.00 | 498.15 | 0.00 | 16.23 | 0.00 | 20103.92 | 16024.37 | 0.00 | 0.00 | 4079.55 |
| 166+50 | 16650.00 | 50.00 | 241.42 | 0.00 | 9.59 | 0.00 | 465.99 | 0.00 | 17.85 | 0.00 | 20569.91 | 16045.80 | 0.00 | 0.00 | 4524.12 |
| 167+00 | 16700.00 | 50.00 | 223.78 | 0.00 | 8.37 | 0.00 | 430.74 | 0.00 | 16.63 | 0.00 | 21000.65 | 16065.75 | 0.00 | 0.00 | 4934.90 |
| 167+50 | 16750.00 | 50.00 | 212.10 | 0.00 | 8.54 | 0.00 | 403.59 | 0.00 | 15.66 | 0.00 | 21404.25 | 16084.54 | 0.00 | 0.00 | 5319.71 |
| 168+00 | 16800.00 | 50.00 | 201.88 | 0.00 | 8.96 | 0.00 | 383.31 | 0.00 | 16.20 | 0.00 | 21787.56 | 16103.98 | 0.00 | 0.00 | 5683.58 |
| 168+50 | 16850.00 | 50.00 | 194.11 | 0.00 | 9.35 | 0.00 | 366.66 | 0.00 | 16.95 | 0.00 | 22154.22 | 16124.33 | 0.00 | 0.00 | 6029.89 |
| 169+00 | 16900.00 | 50.00 | 201.97 | 0.00 | 9.55 | 0.00 | 366.74 | 0.00 | 17.50 | 0.00 | 22520.96 | 16145.33 | 0.00 | 0.00 | 6375.63 |
| 169+50 | 16950.00 | 50.00 | 200.41 | 0.00 | 9.58 | 0.00 | 372.57 | 0.00 | 17.71 | 0.00 | 22893.53 | 16166.58 | 0.00 | 0.00 | 6726.95 |
| 170+00 | 17000.00 | 50.00 | 226.08 | 0.00 | 10.08 | 0.00 | 394.90 | 0.00 | 18.20 | 0.00 | 23288.43 | 16188.43 | 0.00 | 0.00 | 7100.00 |
| 170+50 | 17050.00 | 50.00 | 245.46 | 0.00 | 11.25 | 0.00 | 436.61 | 0.00 | 19.75 | 0.00 | 23725.04 | 16212.13 | 0.00 | 0.00 | 7512.91 |
| 171+00 | 17100.00 | 50.00 | 244.19 | 0.00 | 11.40 | 0.00 | 453.38 | 0.00 | 20.97 | 0.00 | 24178.42 | 16237.30 | 0.00 | 0.00 | 7941.13 |
| 171+50 | 17150.00 | 50.00 | 242.29 | 0.00 | 9.48 | 0.00 | 450.44 | 0.00 | 19.33 | 0.00 | 24628.87 | 16260.50 | 0.00 | 0.00 | 8368.37 |
| 172+00 | 17200.00 | 50.00 | 245.31 | 0.00 | 9.25 | 0.00 | 451.48 | 0.00 | 17.34 | 0.00 | 25080.35 | 16281.31 | 0.00 | 0.00 | 8799.04 |
| 172+50 | 17250.00 | 50.00 | 233.10 | 0.00 | 9.20 | 0.00 | 442.97 | 0.00 | 17.08 | 0.00 | 25523.32 | 16301.81 | 0.00 | 0.00 | 9221.51 |
| 173+00 | 17300.00 | 50.00 | 243.96 | 0.00 | 9.15 | 0.00 | 441.72 | 0.00 | 16.99 | 0.00 | 25965.04 | 16322.20 | 0.00 | 0.00 | 9642.85 |
| 173+50 | 17350.00 | 50.00 | 254.22 | 0.00 | 9.10 | 0.00 | 461.28 | 0.00 | 16.90 | 0.00 | 26426.32 | 16342.47 | 0.00 | 0.00 | 10083.85 |
| 174+00 | 17400.00 | 50.00 | 269.23 | 0.00 | 9.05 | 0.00 | 484.68 | 0.00 | 16.81 | 0.00 | 26911.00 | 16362.64 | 0.00 | 0.00 | 10548.36 |
| 174+50 | 17450.00 | 50.00 | 294.39 | 0.00 | 9.00 | 0.00 | 521.87 | 0.00 | 16.71 | 0.00 | 27432.87 | 16382.70 | 0.00 | 0.00 | 11050.17 |
| 175+00 | 17500.00 | 50.00 | 330.05 | 0.00 | 8.95 | 0.00 | 578.19 | 0.00 | 16.62 | 0.00 | 28011.05 | 16402.64 | 0.00 | 0.00 | 11608.41 |
| 175+10 | 17510.46 | 10.46 | 334.55 | 0.00 | 20.14 | 0.00 | 128.74 | 0.00 | 5.63 | 0.00 | 28139.79 | 16409.40 | 0.00 | 0.00 | 11730.39 |

1

Addendum No. 01
ID 1060-33-81
Revised Sheet 4766
August 17, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4766 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew142 PLOT SCALE : 1:1

(CONTINUED)

**Division 6 IH 94 WB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Salvaged/ Unusable Pavement Material Note 2 | Fill Note 3 | EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Expanded Fill 1.2 | Expanded EBS Backfill 1.30 Note 4 | Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 175+10 | 17510.46 | 0.00 | 241.33 | 0.00 | 8.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 28139.79 | 16409.40 | 0.00 | 0.00 | 11730.39 |
| 175+50 | 17550.00 | 39.54 | 258.75 | 0.00 | 8.94 | 0.00 | 366.17 | 0.00 | 13.09 | 0.00 | 28505.96 | 16425.11 | 0.00 | 0.00 | 12080.84 |
| 176+00 | 17600.00 | 50.00 | 285.55 | 0.00 | 8.85 | 0.00 | 503.98 | 0.00 | 16.47 | 0.00 | 29009.94 | 16444.88 | 0.00 | 0.00 | 12565.06 |
| 176+50 | 17650.00 | 50.00 | 317.60 | 0.00 | 8.80 | 0.00 | 558.47 | 0.00 | 16.34 | 0.00 | 29568.41 | 16464.49 | 0.00 | 0.00 | 13103.92 |
| 177+00 | 17700.00 | 50.00 | 352.83 | 0.00 | 8.75 | 0.00 | 620.77 | 0.00 | 16.25 | 0.00 | 30189.18 | 16483.99 | 0.00 | 0.00 | 13705.19 |
| 177+50 | 17750.00 | 50.00 | 383.07 | 0.00 | 8.80 | 0.00 | 681.39 | 0.00 | 16.25 | 0.00 | 30870.57 | 16503.49 | 0.00 | 0.00 | 14367.08 |
| 177+84 | 17783.50 | 33.50 | 396.42 | 0.00 | 8.66 | 0.00 | 483.57 | 0.00 | 10.83 | 0.00 | 31354.14 | 16516.49 | 0.00 | 0.00 | 14837.65 |
| 177+84 | 17783.50 | 0.00 | 618.73 | 0.00 | 9.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 31354.14 | 16516.49 | 0.00 | 0.00 | 14837.65 |
| 178+00 | 17800.00 | 16.50 | 648.80 | 0.00 | 8.82 | 0.00 | 387.30 | 0.00 | 5.51 | 0.00 | 31741.44 | 16523.10 | 0.00 | 0.00 | 15218.34 |
| 178+50 | 17850.00 | 50.00 | 654.91 | 0.00 | 8.60 | 0.00 | 1207.14 | 0.00 | 16.13 | 0.00 | 32948.58 | 16542.46 | 0.00 | 0.00 | 16406.13 |
| 179+00 | 17900.00 | 50.00 | 658.38 | 0.00 | 11.98 | 0.00 | 1216.01 | 0.00 | 19.06 | 0.00 | 34164.59 | 16565.32 | 0.00 | 0.00 | 17599.27 |
| 179+50 | 17950.00 | 50.00 | 673.17 | 0.00 | 8.51 | 0.00 | 1232.92 | 0.00 | 18.97 | 0.00 | 35397.51 | 16588.09 | 0.00 | 0.00 | 18809.42 |
| 180+00 | 18000.00 | 50.00 | 691.51 | 0.00 | 8.46 | 0.00 | 1263.59 | 0.00 | 15.71 | 0.00 | 36661.10 | 16606.94 | 0.00 | 0.00 | 20054.16 |
| 180+50 | 18050.00 | 50.00 | 695.81 | 0.00 | 17.27 | 0.00 | 1284.56 | 0.00 | 23.82 | 0.00 | 37945.65 | 16635.53 | 0.00 | 0.00 | 21310.12 |
| 181+00 | 18100.00 | 50.00 | 774.29 | 0.00 | 8.38 | 0.00 | 1361.20 | 0.00 | 23.75 | 0.00 | 39306.86 | 16664.03 | 0.00 | 0.00 | 22642.83 |
| 181+50 | 18150.00 | 50.00 | 759.23 | 0.00 | 23.28 | 0.00 | 1419.93 | 0.00 | 29.31 | 0.00 | 40726.78 | 16699.21 | 0.00 | 0.00 | 24027.57 |
| 182+00 | 18200.00 | 50.00 | 946.64 | 0.00 | 51.64 | 0.00 | 1579.51 | 0.00 | 69.37 | 0.00 | 42306.29 | 16782.46 | 0.00 | 0.00 | 25523.84 |
| 182+50 | 18250.00 | 50.00 | 814.85 | 0.00 | 59.36 | 0.00 | 1631.01 | 0.00 | 102.78 | 0.00 | 43937.30 | 16905.79 | 0.00 | 0.00 | 27031.51 |
| 183+00 | 18300.00 | 50.00 | 537.28 | 0.00 | 73.93 | 0.00 | 1251.97 | 0.00 | 123.42 | 0.00 | 45189.28 | 17053.89 | 0.00 | 0.00 | 28135.39 |
| 183+50 | 18350.00 | 50.00 | 470.05 | 0.00 | 134.19 | 0.00 | 932.71 | 0.00 | 192.70 | 0.00 | 46121.99 | 17285.13 | 0.00 | 0.00 | 28836.86 |
| 184+00 | 18400.00 | 50.00 | 457.54 | 0.00 | 184.45 | 0.00 | 858.88 | 0.00 | 295.04 | 0.00 | 46980.87 | 17639.18 | 0.00 | 0.00 | 29341.69 |
| 184+50 | 18450.00 | 50.00 | 431.06 | 0.00 | 273.96 | 0.00 | 822.78 | 0.00 | 424.45 | 0.00 | 47803.65 | 18148.52 | 0.00 | 0.00 | 29655.12 |
| 185+00 BK | 18500.00 | 50.00 | 406.68 | 0.00 | 635.17 | 0.00 | 775.69 | 0.00 | 841.79 | 0.00 | 48579.33 | 19158.67 | 0.00 | 0.00 | 29420.66 |
| | | | | | | Column totals | 51888.02 | 0.00 | 65242.81 | 0.00 | | | | | |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4767
August 17, 2015



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4767 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew143 PLOT SCALE : 1:1

**Division 6 RAMP SA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 559+81 AH | 55981.32 | 0.00 | 59.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 560+00 | 56000.00 | 18.68 | 43.25 | 0.00 | 0.82 | 0.00 | 35.51 | 0.00 | 0.28 | 0.00 | 35.51 | 0.34 | 0.00 | 0.00 | 35.17 |
| 560+50 | 56050.00 | 50.00 | 48.97 | 0.00 | 0.00 | 0.00 | 85.39 | 0.00 | 0.76 | 0.00 | 120.90 | 1.25 | 0.00 | 0.00 | 119.65 |
| 561+00 | 56100.00 | 50.00 | 65.01 | 0.00 | 0.00 | 0.00 | 105.54 | 0.00 | 0.00 | 0.00 | 226.44 | 1.25 | 0.00 | 0.00 | 225.19 |
| 561+17 BK | 56116.77 | 16.77 | 62.23 | 0.00 | 0.00 | 0.00 | 39.52 | 0.00 | 0.00 | 0.00 | 265.95 | 1.25 | 0.00 | 0.00 | 264.70 |
| 563+28 AH | 56327.74 | 0.00 | 89.98 | 0.00 | 1.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 563+50 | 56350.00 | 22.26 | 30.73 | 0.00 | 4.97 | 0.00 | 49.76 | 0.00 | 2.52 | 0.00 | 49.76 | 3.02 | 0.00 | 0.00 | 46.74 |
| 564+00 | 56400.00 | 50.00 | 26.73 | 0.00 | 4.23 | 0.00 | 53.20 | 0.00 | 8.52 | 0.00 | 102.96 | 13.24 | 0.00 | 0.00 | 89.72 |
| 564+50 | 56450.00 | 50.00 | 21.15 | 0.00 | 3.26 | 0.00 | 44.33 | 0.00 | 6.94 | 0.00 | 147.30 | 21.57 | 0.00 | 0.00 | 125.73 |
| 565+00 | 56500.00 | 50.00 | 15.77 | 0.00 | 1.32 | 0.00 | 34.19 | 0.00 | 4.24 | 0.00 | 181.48 | 26.66 | 0.00 | 0.00 | 154.83 |
| 565+50 | 56550.00 | 50.00 | 9.06 | 0.00 | 4.28 | 0.00 | 22.99 | 0.00 | 5.19 | 0.00 | 204.47 | 32.88 | 0.00 | 0.00 | 171.59 |
| 566+00 | 56600.00 | 50.00 | 7.52 | 0.00 | 8.85 | 0.00 | 15.35 | 0.00 | 12.16 | 0.00 | 219.82 | 47.47 | 0.00 | 0.00 | 172.36 |
| 566+50 | 56650.00 | 50.00 | 5.01 | 0.00 | 11.47 | 0.00 | 11.60 | 0.00 | 18.81 | 0.00 | 231.43 | 70.04 | 0.00 | 0.00 | 161.38 |
| 567+00 | 56700.00 | 50.00 | 2.30 | 0.00 | 10.81 | 0.00 | 6.77 | 0.00 | 20.63 | 0.00 | 238.19 | 94.80 | 0.00 | 0.00 | 143.39 |
| 567+50 | 56750.00 | 50.00 | 1.59 | 0.00 | 9.63 | 0.00 | 3.60 | 0.00 | 18.93 | 0.00 | 241.80 | 117.51 | 0.00 | 0.00 | 124.29 |
| 568+00 | 56800.00 | 50.00 | 0.03 | 0.00 | 10.70 | 0.00 | 1.50 | 0.00 | 18.82 | 0.00 | 243.30 | 140.10 | 0.00 | 0.00 | 103.20 |
| 568+50 | 56850.00 | 50.00 | 0.04 | 0.00 | 10.07 | 0.00 | 0.06 | 0.00 | 19.23 | 0.00 | 243.36 | 163.18 | 0.00 | 0.00 | 80.18 |
| 569+00 | 56900.00 | 50.00 | 0.03 | 0.00 | 9.88 | 0.00 | 0.06 | 0.00 | 18.47 | 0.00 | 243.43 | 185.34 | 0.00 | 0.00 | 58.08 |
| 569+50 | 56950.00 | 50.00 | 0.03 | 0.00 | 10.02 | 0.00 | 0.06 | 0.00 | 18.43 | 0.00 | 243.48 | 207.46 | 0.00 | 0.00 | 36.03 |
| 570+00 | 57000.00 | 50.00 | 0.03 | 0.00 | 9.92 | 0.00 | 0.06 | 0.00 | 18.46 | 0.00 | 243.54 | 229.61 | 0.00 | 0.00 | 13.93 |
| 570+50 | 57050.00 | 50.00 | 0.04 | 0.00 | 9.93 | 0.00 | 0.06 | 0.00 | 18.38 | 0.00 | 243.60 | 251.67 | 0.00 | 0.00 | -8.06 |
| 571+00 | 57100.00 | 50.00 | 0.03 | 0.00 | 12.94 | 0.00 | 0.06 | 0.00 | 21.18 | 0.00 | 243.67 | 277.08 | 0.00 | 0.00 | -33.41 |
| 571+28 BK | 57128.02 | 28.02 | 93.44 | 0.00 | 0.02 | 0.00 | 48.50 | 0.00 | 6.72 | 0.00 | 292.17 | 285.15 | 0.00 | 0.00 | 7.02 |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4786
August 17, 2015

(CONTINUED ON NEXT SHEET)



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4786 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/11/2015 11:25:36 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew162 PLOT SCALE : 1:1

(CONTINUED)

**Division 6 RAMP SA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 572+36 AH | 57235.53 | 0.00 | 1.33 | 0.00 | 0.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 572+50 | 57250.00 | 14.47 | 3.19 | 0.00 | 21.13 | 0.00 | 1.21 | 0.00 | 5.75 | 0.00 | 1.21 | 6.90 | 0.00 | 0.00 | -5.69 |
| 573+00 | 57300.00 | 50.00 | 0.89 | 0.00 | 11.77 | 0.00 | 3.78 | 0.00 | 30.46 | 0.00 | 4.99 | 43.46 | 0.00 | 0.00 | -38.47 |
| 573+03 | 57302.73 | 2.73 | 0.62 | 0.00 | 12.58 | 0.00 | 0.08 | 0.00 | 1.23 | 0.00 | 5.07 | 44.94 | 0.00 | 0.00 | -39.87 |
| 573+03 | 57302.73 | 0.00 | 0.64 | 0.00 | 20.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.07 | 44.94 | 0.00 | 0.00 | -39.87 |
| 573+50 | 57350.00 | 47.27 | 1.67 | 0.00 | 25.68 | 0.00 | 2.02 | 0.00 | 40.70 | 0.00 | 7.09 | 93.78 | 0.00 | 0.00 | -86.69 |
| 574+00 | 57400.00 | 50.00 | 2.64 | 0.00 | 103.80 | 0.00 | 3.99 | 0.00 | 119.89 | 0.00 | 11.08 | 237.65 | 0.00 | 0.00 | -226.57 |
| 574+50 | 57450.00 | 50.00 | 3.32 | 0.00 | 243.69 | 0.00 | 5.52 | 0.00 | 321.75 | 0.00 | 16.60 | 623.75 | 0.00 | 0.00 | -607.15 |
| 575+00 | 57500.00 | 50.00 | 22.96 | 0.00 | 308.09 | 0.00 | 24.33 | 0.00 | 510.91 | 0.00 | 40.93 | 1236.84 | 0.00 | 0.00 | -1195.91 |
| 575+23 | 57523.43 | 23.43 | 44.71 | 0.00 | 325.28 | 0.00 | 29.36 | 0.00 | 274.81 | 0.00 | 70.29 | 1566.61 | 0.00 | 0.00 | -1496.32 |
| 575+23 | 57523.43 | 0.00 | 140.19 | 0.00 | 327.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 70.29 | 1566.61 | 0.00 | 0.00 | -1496.32 |
| 575+50 | 57550.00 | 26.57 | 154.06 | 0.00 | 341.16 | 0.00 | 144.78 | 0.00 | 328.84 | 0.00 | 215.07 | 1961.22 | 0.00 | 0.00 | -1746.15 |
| 576+00 | 57600.00 | 50.00 | 179.58 | 0.00 | 318.56 | 0.00 | 308.93 | 0.00 | 610.85 | 0.00 | 524.00 | 2694.24 | 0.00 | 0.00 | -2170.24 |
| 576+50 | 57650.00 | 50.00 | 201.35 | 0.00 | 246.08 | 0.00 | 352.71 | 0.00 | 522.81 | 0.00 | 876.71 | 3321.62 | 0.00 | 0.00 | -2444.91 |
| 577+00 | 57700.00 | 50.00 | 196.36 | 0.00 | 23.05 | 0.00 | 368.25 | 0.00 | 249.19 | 0.00 | 1244.96 | 3620.65 | 0.00 | 0.00 | -2375.69 |
| 577+50 | 57750.00 | 50.00 | 208.86 | 0.00 | 18.96 | 0.00 | 375.20 | 0.00 | 38.90 | 0.00 | 1620.17 | 3667.33 | 0.00 | 0.00 | -2047.16 |
| 577+88 BK | 57788.29 | 38.29 | 211.26 | 0.00 | 19.88 | 0.00 | 297.90 | 0.00 | 27.54 | 0.00 | 1918.06 | 3700.38 | 0.00 | 0.00 | -1782.32 |
| | | | | | | Column totals | 2476.18 | 0.00 | 3322.31 | 0.00 | | | | | |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4787
August 17, 2015



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4787 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew163 PLOT SCALE : 1:1

**Division 8 RAMP GE**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged / Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged / Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 764+53 AH | 76453.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 765+00 | 76500.00 | 46.80 | 27.24 | 0.00 | 0.00 | 0.00 | 23.61 | 0.00 | 0.00 | 0.00 | 23.61 | 0.00 | 0.00 | 0.00 | 23.61 |
| 765+50 | 76550.00 | 50.00 | 43.54 | 0.00 | 0.00 | 0.00 | 65.54 | 0.00 | 0.00 | 0.00 | 89.15 | 0.00 | 0.00 | 0.00 | 89.15 |
| 766+00 | 76600.00 | 50.00 | 46.62 | 0.00 | 1.85 | 0.00 | 83.48 | 0.00 | 1.71 | 0.00 | 172.63 | 2.06 | 0.00 | 0.00 | 170.57 |
| 766+50 | 76650.00 | 50.00 | 54.17 | 0.00 | 1.29 | 0.00 | 93.32 | 0.00 | 2.91 | 0.00 | 265.95 | 5.54 | 0.00 | 0.00 | 260.41 |
| 767+00 | 76700.00 | 50.00 | 59.13 | 0.00 | 0.67 | 0.00 | 104.91 | 0.00 | 1.81 | 0.00 | 370.86 | 7.72 | 0.00 | 0.00 | 363.14 |
| 767+50 | 76750.00 | 50.00 | 58.02 | 0.00 | 4.32 | 0.00 | 108.47 | 0.00 | 4.62 | 0.00 | 479.33 | 13.27 | 0.00 | 0.00 | 466.06 |
| 768+00 | 76800.00 | 50.00 | 56.25 | 0.00 | 7.55 | 0.00 | 105.81 | 0.00 | 10.99 | 0.00 | 585.14 | 26.46 | 0.00 | 0.00 | 558.68 |
| 768+50 | 76850.00 | 50.00 | 52.98 | 0.00 | 16.57 | 0.00 | 101.14 | 0.00 | 22.33 | 0.00 | 686.27 | 53.26 | 0.00 | 0.00 | 633.02 |
| 769+00 | 76900.00 | 50.00 | 45.73 | 0.00 | 37.32 | 0.00 | 91.40 | 0.00 | 49.90 | 0.00 | 777.67 | 113.13 | 0.00 | 0.00 | 664.54 |
| 769+45 | 76945.00 | 45.00 | 41.48 | 0.00 | 56.97 | 0.00 | 72.68 | 0.00 | 78.58 | 0.00 | 850.35 | 207.42 | 0.00 | 0.00 | 642.92 |
| 769+45 | 76945.00 | 0.00 | 41.46 | 0.00 | 57.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 850.35 | 207.42 | 0.00 | 0.00 | 642.92 |
| 769+50 | 76950.00 | 5.00 | 41.40 | 0.00 | 58.07 | 0.00 | 7.67 | 0.00 | 10.67 | 0.00 | 858.02 | 220.23 | 0.00 | 0.00 | 637.79 |
| 770+00 | 77000.00 | 50.00 | 104.43 | 0.00 | 60.85 | 0.00 | 135.03 | 0.00 | 110.11 | 0.00 | 993.05 | 352.36 | 0.00 | 0.00 | 640.69 |
| 770+50 | 77050.00 | 50.00 | 93.29 | 0.00 | 75.60 | 0.00 | 183.07 | 0.00 | 126.34 | 0.00 | 1176.12 | 503.97 | 0.00 | 0.00 | 672.15 |
| 771+00 | 77100.00 | 50.00 | 74.09 | 0.00 | 83.87 | 0.00 | 154.98 | 0.00 | 147.66 | 0.00 | 1331.10 | 681.16 | 0.00 | 0.00 | 649.94 |
| 771+50 | 77150.00 | 50.00 | 49.24 | 0.00 | 97.50 | 0.00 | 114.19 | 0.00 | 167.94 | 0.00 | 1445.30 | 882.68 | 0.00 | 0.00 | 562.61 |
| 772+00 | 77200.00 | 50.00 | 31.28 | 0.00 | 168.84 | 0.00 | 74.56 | 0.00 | 246.61 | 0.00 | 1519.85 | 1178.62 | 0.00 | 0.00 | 341.24 |
| 772+50 | 77250.00 | 50.00 | 23.47 | 0.00 | 171.60 | 0.00 | 50.69 | 0.00 | 315.22 | 0.00 | 1570.55 | 1556.88 | 0.00 | 0.00 | 13.66 |
| 773+00 | 77300.00 | 50.00 | 23.39 | 0.00 | 171.53 | 0.00 | 43.39 | 0.00 | 317.71 | 0.00 | 1613.94 | 1938.14 | 0.00 | 0.00 | -324.20 |
| 773+50 | 77350.00 | 50.00 | 39.22 | 0.00 | 212.15 | 0.00 | 57.97 | 0.00 | 355.26 | 0.00 | 1671.91 | 2364.45 | 0.00 | 0.00 | -692.54 |
| 774+00 | 77400.00 | 50.00 | 57.83 | 0.00 | 276.84 | 0.00 | 89.86 | 0.00 | 452.77 | 0.00 | 1761.77 | 2907.77 | 0.00 | 0.00 | -1146.00 |
| 774+50 | 77450.00 | 50.00 | 67.67 | 0.00 | 317.45 | 0.00 | 116.20 | 0.00 | 550.27 | 0.00 | 1877.97 | 3568.10 | 0.00 | 0.00 | -1690.12 |
| 775+00 | 77500.00 | 50.00 | 73.50 | 0.00 | 313.21 | 0.00 | 130.71 | 0.00 | 583.94 | 0.00 | 2008.69 | 4268.83 | 0.00 | 0.00 | -2260.14 |
| 775+50 | 77550.00 | 50.00 | 80.32 | 0.00 | 259.98 | 0.00 | 142.43 | 0.00 | 530.73 | 0.00 | 2151.11 | 4905.71 | 0.00 | 0.00 | -2754.59 |
| 776+00 | 77600.00 | 50.00 | 99.96 | 0.00 | 167.18 | 0.00 | 166.93 | 0.00 | 395.52 | 0.00 | 2318.04 | 5380.33 | 0.00 | 0.00 | -3062.29 |
| 776+50 | 77650.00 | 50.00 | 108.87 | 0.00 | 101.94 | 0.00 | 193.36 | 0.00 | 249.19 | 0.00 | 2511.40 | 5679.35 | 0.00 | 0.00 | -3167.95 |
| 777+00 | 77700.00 | 50.00 | 113.12 | 0.00 | 51.42 | 0.00 | 205.55 | 0.00 | 142.00 | 0.00 | 2716.95 | 5849.75 | 0.00 | 0.00 | -3132.81 |
| 777+01 | 77700.63 | 0.63 | 114.41 | 0.00 | 51.86 | 0.00 | 2.65 | 0.00 | 1.20 | 0.00 | 2719.60 | 5851.20 | 0.00 | 0.00 | -3131.60 |

1

Addendum No. 01
ID 1060-33-81
Revised Sheet 4827
August 17, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4827 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew203 PLOT SCALE : 1:1

(CONTINUED)

**Division 8 RAMP GE**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.2 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 777+01 | 77700.63 | 0.00 | 74.82 | 0.00 | 1.98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2719.60 | 5851.20 | 0.00 | 0.00 | -3131.60 |
| 777+50 | 77750.00 | 49.37 | 72.20 | 0.00 | 2.28 | 0.00 | 134.41 | 0.00 | 3.89 | 0.00 | 2854.01 | 5855.87 | 0.00 | 0.00 | -3001.86 |
| 778+00 | 77800.00 | 50.00 | 79.63 | 0.00 | 0.54 | 0.00 | 140.58 | 0.00 | 2.61 | 0.00 | 2994.60 | 5859.00 | 0.00 | 0.00 | -2864.41 |
| 778+50 | 77850.00 | 50.00 | 97.94 | 0.00 | 0.02 | 0.00 | 164.42 | 0.00 | 0.52 | 0.00 | 3159.01 | 5859.63 | 0.00 | 0.00 | -2700.61 |
| | | | | | 0.00 | | | | | | | | | | |
| 778+50 | 77850.00 | 0.00 | 31.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3159.01 | 5859.63 | 0.00 | 0.00 | -2700.61 |
| 779+00 | 77900.00 | 50.00 | 26.64 | 0.00 | 0.14 | 0.00 | 53.39 | 0.00 | 0.13 | 0.00 | 3212.40 | 5859.78 | 0.00 | 0.00 | -2647.38 |
| 779+50 | 77950.00 | 50.00 | 27.63 | 0.00 | 0.12 | 0.00 | 50.25 | 0.00 | 0.24 | 0.00 | 3262.65 | 5860.07 | 0.00 | 0.00 | -2597.42 |
| 779+79 | 77978.75 | 28.75 | 36.01 | 0.00 | 6.96 | 0.00 | 33.88 | 0.00 | 3.77 | 0.00 | 3296.54 | 5864.59 | 0.00 | 0.00 | -2568.06 |
| 779+81 BK | 77981.19 | 2.44 | 0.00 | 0.00 | 0.00 | 0.00 | 1.63 | 0.00 | 0.31 | 0.00 | 3298.16 | 5864.97 | 0.00 | 0.00 | -2566.81 |
| 780+83 AH | 78083.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 780+93 | 78093.41 | 10.06 | 10.24 | 0.00 | 255.81 | 0.00 | 1.91 | 0.00 | 47.66 | 0.00 | 1.91 | 57.19 | 0.00 | 0.00 | -55.28 |
| 781+00 | 78100.00 | 6.59 | 35.30 | 0.00 | 92.04 | 0.00 | 5.56 | 0.00 | 42.45 | 0.00 | 7.47 | 108.13 | 0.00 | 0.00 | -100.66 |
| 781+50 | 78150.00 | 50.00 | 121.07 | 0.00 | 5.63 | 0.00 | 144.79 | 0.00 | 90.44 | 0.00 | 152.25 | 216.65 | 0.00 | 0.00 | -64.40 |
| 782+00 | 78200.00 | 50.00 | 106.84 | 0.00 | 11.43 | 0.00 | 211.03 | 0.00 | 15.80 | 0.00 | 363.28 | 235.61 | 0.00 | 0.00 | 127.67 |
| 782+50 | 78250.00 | 50.00 | 116.86 | 0.00 | 15.67 | 0.00 | 207.13 | 0.00 | 25.09 | 0.00 | 570.41 | 265.72 | 0.00 | 0.00 | 304.69 |
| 783+00 | 78300.00 | 50.00 | 137.13 | 0.00 | 0.00 | 0.00 | 235.18 | 0.00 | 14.51 | 0.00 | 805.59 | 283.13 | 0.00 | 0.00 | 522.46 |
| 783+50 | 78350.00 | 50.00 | 120.30 | 0.00 | 0.12 | 0.00 | 238.36 | 0.00 | 0.11 | 0.00 | 1043.95 | 283.26 | 0.00 | 0.00 | 760.68 |
| 784+00 | 78400.00 | 50.00 | 175.58 | 0.00 | 18.77 | 0.00 | 273.96 | 0.00 | 17.49 | 0.00 | 1317.91 | 304.25 | 0.00 | 0.00 | 1013.66 |
| 784+50 | 78450.00 | 50.00 | 356.14 | 0.00 | 3.57 | 0.00 | 492.33 | 0.00 | 20.69 | 0.00 | 1810.24 | 329.07 | 0.00 | 0.00 | 1481.17 |
| 785+00 | 78500.00 | 50.00 | 531.54 | 0.00 | 4.11 | 0.00 | 821.93 | 0.00 | 7.11 | 0.00 | 2632.17 | 337.61 | 0.00 | 0.00 | 2294.56 |
| 785+47 | 78547.19 | 47.19 | 0.00 | 0.00 | 79.18 | 0.00 | 464.51 | 0.00 | 72.79 | 0.00 | 3096.68 | 424.95 | 0.00 | 0.00 | 2671.73 |
| 785+52 BK | 78552.06 | 4.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7.14 | 0.00 | 3096.68 | 433.52 | 0.00 | 0.00 | 2663.16 |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4828
August 17, 2015

(CONTINUED ON NEXT SHEET)



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4828 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew204 PLOT SCALE : 1:1

(CONTINUED)

**Division 8 RAMP GE**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Salvaged/ Unusable Pavement Material Note 2 | Fill Note 3 | EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Expanded Fill 1.2 | Expanded EBS Backfill 1.30 Note 4 | Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 786+50 AH | 78649.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 786+55 | 78654.60 | 4.87 | 0.00 | 0.00 | 98.87 | 0.00 | 0.00 | 0.00 | 8.92 | 0.00 | 0.00 | 10.70 | 0.00 | 0.00 | -10.70 |
| 787+00 | 78700.00 | 45.40 | 1090.19 | 0.00 | 0.00 | 0.00 | 916.57 | 0.00 | 83.12 | 0.00 | 916.57 | 110.45 | 0.00 | 0.00 | 806.12 |
| 787+50 | 78750.00 | 50.00 | 614.31 | 0.00 | 2.39 | 0.00 | 1578.24 | 0.00 | 2.21 | 0.00 | 2494.81 | 113.10 | 0.00 | 0.00 | 2381.70 |
| 788+00 | 78800.00 | 50.00 | 415.56 | 0.00 | 0.86 | 0.00 | 953.58 | 0.00 | 3.01 | 0.00 | 3448.39 | 116.72 | 0.00 | 0.00 | 3331.68 |
| 788+30 | 78830.00 | 30.00 | 401.23 | 0.00 | 0.23 | 0.00 | 453.77 | 0.00 | 0.61 | 0.00 | 3902.16 | 117.44 | 0.00 | 0.00 | 3784.72 |
| 788+30 | 78830.00 | 0.00 | 449.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3902.16 | 117.44 | 0.00 | 0.00 | 3784.72 |
| 788+50 | 78850.00 | 20.00 | 383.58 | 0.00 | 0.00 | 0.00 | 308.56 | 0.00 | 0.00 | 0.00 | 4210.73 | 117.44 | 0.00 | 0.00 | 4093.28 |
| 789+00 | 78900.00 | 50.00 | 212.73 | 0.00 | 0.00 | 0.00 | 552.14 | 0.00 | 0.00 | 0.00 | 4762.87 | 117.44 | 0.00 | 0.00 | 4645.42 |
| 789+50 | 78950.00 | 50.00 | 62.18 | 0.00 | 41.05 | 0.00 | 254.55 | 0.00 | 38.01 | 0.00 | 5017.41 | 163.05 | 0.00 | 0.00 | 4854.36 |
| 789+95 BK | 78994.53 | 44.53 | 0.00 | 0.00 | 696.15 | 0.00 | 51.28 | 0.00 | 607.92 | 0.00 | 5068.69 | 892.55 | 0.00 | 0.00 | 4176.13 |
| | | | | | | Column totals | 11463.53 | 0.00 | 5992.54 | 0.00 | | | | | |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4829
August 17, 2015



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4829 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/13/2015 11:59:01 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew205 PLOT SCALE : 1:1

(CONTINUED)

**Division 8 HA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged / Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Salvaged / Unusable Pavement Material Note 2 | Fill Note 3 | EBS | Cumulative Vol (CY) Cut 1.0 | Expanded Fill 1.2 | Expanded EBS Backfill 1.3 Note 4 | Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 173+50 | 17350.00 | 50.00 | 18.24 | 0.00 | 1.46 | 0.00 | 21.70 | 0.00 | 5.42 | 0.00 | 2706.14 | 1859.21 | 0.00 | 0.00 | 0.00 |
| 174+00 | 17400.00 | 50.00 | 186.94 | 0.00 | 0.47 | 0.00 | 189.98 | 0.00 | 1.79 | 0.00 | 2896.12 | 1861.36 | 0.00 | 0.00 | 0.00 |
| 174+50 | 17450.00 | 50.00 | 20.63 | 0.00 | 0.80 | 0.00 | 192.19 | 0.00 | 1.18 | 0.00 | 3088.32 | 1862.77 | 0.00 | 0.00 | 0.00 |
| 175+00 | 17500.00 | 50.00 | 10.35 | 0.00 | 0.90 | 0.00 | 28.69 | 0.00 | 1.57 | 0.00 | 3117.00 | 1864.66 | 0.00 | 0.00 | 0.00 |
| 175+50 | 17550.00 | 50.00 | 5.24 | 0.00 | 24.82 | 0.00 | 14.44 | 0.00 | 23.81 | 0.00 | 3131.44 | 1893.24 | 0.00 | 0.00 | 0.00 |
| 176+00 | 17600.00 | 50.00 | 5.92 | 0.00 | 49.08 | 0.00 | 10.33 | 0.00 | 68.43 | 0.00 | 3141.77 | 1975.35 | 0.00 | 0.00 | 0.00 |
| 176+50 | 17650.00 | 50.00 | 12.08 | 0.00 | 105.54 | 0.00 | 16.67 | 0.00 | 143.17 | 0.00 | 3158.44 | 2147.15 | 0.00 | 0.00 | 0.00 |
| 177+00 | 17700.00 | 50.00 | 3.34 | 0.00 | 81.21 | 0.00 | 14.28 | 0.00 | 172.92 | 0.00 | 3172.72 | 2354.65 | 0.00 | 0.00 | 0.00 |
| 177+50 | 17750.00 | 50.00 | 2.61 | 0.00 | 171.00 | 0.00 | 5.51 | 0.00 | 233.53 | 0.00 | 3178.22 | 2634.88 | 0.00 | 0.00 | 0.00 |
| 178+00 | 17800.00 | 50.00 | 3.86 | 0.00 | 53.92 | 0.00 | 5.99 | 0.00 | 208.26 | 0.00 | 3184.22 | 2884.79 | 0.00 | 0.00 | 0.00 |
| 178+50 | 17850.00 | 50.00 | 0.99 | 0.00 | 56.93 | 0.00 | 4.49 | 0.00 | 102.64 | 0.00 | 3188.71 | 3007.96 | 0.00 | 0.00 | 0.00 |
| 179+00 | 17900.00 | 50.00 | 1.25 | 0.00 | 129.75 | 0.00 | 2.07 | 0.00 | 172.85 | 0.00 | 3190.78 | 3215.38 | 0.00 | 0.00 | 0.00 |
| 179+50 | 17950.00 | 50.00 | 0.08 | 0.00 | 74.45 | 0.00 | 1.23 | 0.00 | 189.07 | 0.00 | 3192.01 | 3442.27 | 0.00 | 0.00 | 0.00 |
| 180+00 | 18000.00 | 50.00 | 492.57 | 0.00 | 0.56 | 0.00 | 456.16 | 0.00 | 69.45 | 0.00 | 3648.17 | 3525.61 | 0.00 | 0.00 | 0.00 |
| 180+50 | 18050.00 | 50.00 | 1836.80 | 0.00 | 3.94 | 0.00 | 2156.82 | 0.00 | 4.17 | 0.00 | 5804.99 | 3530.61 | 0.00 | 0.00 | 0.00 |
| 181+00 | 18100.00 | 50.00 | 2051.30 | 0.00 | 12.49 | 0.00 | 3600.09 | 0.00 | 15.21 | 0.00 | 9405.09 | 3548.87 | 0.00 | 0.00 | 0.00 |
| 181+50 | 18150.00 | 50.00 | 407.36 | 0.00 | 0.00 | 0.00 | 2276.54 | 0.00 | 11.56 | 0.00 | 11681.62 | 3562.75 | 0.00 | 0.00 | 0.00 |
| 182+00 | 18200.00 | 50.00 | 205.34 | 0.00 | 9.17 | 0.00 | 567.31 | 0.00 | 8.49 | 0.00 | 12248.94 | 3572.94 | 0.00 | 0.00 | 0.00 |
| 182+50 | 18250.00 | 50.00 | 236.83 | 0.00 | 6.18 | 0.00 | 409.42 | 0.00 | 14.21 | 0.00 | 12658.35 | 3589.99 | 0.00 | 0.00 | 0.00 |
| 183+00 | 18300.00 | 50.00 | 60.36 | 0.00 | 9.06 | 0.00 | 275.18 | 0.00 | 14.11 | 0.00 | 12933.53 | 3606.93 | 0.00 | 0.00 | 0.00 |
| 183+50 | 18350.00 | 50.00 | 0.12 | 0.00 | 6.26 | 0.00 | 56.00 | 0.00 | 14.19 | 0.00 | 12989.53 | 3623.95 | 0.00 | 0.00 | 0.00 |
| 184+00 | 18400.00 | 50.00 | 0.11 | 0.00 | 13.97 | 0.00 | 0.21 | 0.00 | 18.73 | 0.00 | 12989.74 | 3646.43 | 0.00 | 0.00 | 0.00 |
| 184+50 | 18450.00 | 50.00 | 25.64 | 0.00 | 8.14 | 0.00 | 23.84 | 0.00 | 20.47 | 0.00 | 13013.59 | 3670.99 | 0.00 | 0.00 | 0.00 |
| 185+00 | 18500.00 | 50.00 | 25.18 | 0.00 | 12.89 | 0.00 | 47.06 | 0.00 | 19.47 | 0.00 | 13060.64 | 3694.36 | 0.00 | 0.00 | 0.00 |
| 185+50 | 18550.00 | 50.00 | 21.13 | 0.00 | 3.84 | 0.00 | 42.88 | 0.00 | 15.49 | 0.00 | 13103.52 | 3712.95 | 0.00 | 0.00 | 0.00 |
| 186+00 | 18600.00 | 50.00 | 35.89 | 0.00 | 1.56 | 0.00 | 52.80 | 0.00 | 5.00 | 0.00 | 13156.32 | 3718.95 | 0.00 | 0.00 | 0.00 |
| 186+50 | 18650.00 | 50.00 | 101.62 | 0.00 | 0.85 | 0.00 | 127.32 | 0.00 | 2.23 | 0.00 | 13283.64 | 3721.63 | 0.00 | 0.00 | 0.00 |
| 187+00 | 18700.00 | 50.00 | 96.62 | 0.00 | 4.30 | 0.00 | 183.56 | 0.00 | 4.77 | 0.00 | 13467.20 | 3727.35 | 0.00 | 0.00 | 0.00 |
| 187+50 | 18750.00 | 50.00 | 87.56 | 0.00 | 8.59 | 0.00 | 170.54 | 0.00 | 11.94 | 0.00 | 13637.73 | 3741.67 | 0.00 | 0.00 | 0.00 |
| 188+00 | 18800.00 | 50.00 | 90.12 | 0.00 | 11.15 | 0.00 | 164.52 | 0.00 | 18.28 | 0.00 | 13802.25 | 3763.60 | 0.00 | 0.00 | 0.00 |
| 188+50 | 18850.00 | 50.00 | 83.89 | 0.00 | 11.90 | 0.00 | 161.12 | 0.00 | 21.34 | 0.00 | 13963.37 | 3789.21 | 0.00 | 0.00 | 0.00 |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 01
ID 1060-33-81
Revised Sheet 4840
August 17, 2015

(CONTINUED ON NEXT SHEET)



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4840 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew216 PLOT SCALE : 1:1

(CONTINUED)

**Division 8 HA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged / Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Salvaged / Unusable Pavement Material Note 2 | Fill Note 3 | EBS | Cumulative Vol (CY) Cut 1.0 | Expanded Fill 1.2 | Expanded EBS Backfill 1.3 Note 4 | Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 189+00 | 18900.00 | 50.00 | 77.96 | 0.00 | 7.02 | 0.00 | 149.86 | 0.00 | 17.52 | 0.00 | 14113.23 | 3810.24 | 0.00 | 0.00 | 0.00 |
| 189+50 | 18950.00 | 50.00 | 36.78 | 0.00 | 9.48 | 0.00 | 106.24 | 0.00 | 15.28 | 0.00 | 14219.47 | 3828.57 | 0.00 | 0.00 | 0.00 |
| 190+00 | 19000.00 | 50.00 | 17.83 | 0.00 | 12.39 | 0.00 | 50.56 | 0.00 | 20.25 | 0.00 | 14270.04 | 3852.87 | 0.00 | 0.00 | 0.00 |
| 190+50 | 19050.00 | 50.00 | 9.20 | 0.00 | 9.56 | 0.00 | 25.03 | 0.00 | 20.32 | 0.00 | 14295.07 | 3877.26 | 0.00 | 0.00 | 0.00 |
| 191+00 | 19100.00 | 50.00 | 2.20 | 0.00 | 3.77 | 0.00 | 10.56 | 0.00 | 12.34 | 0.00 | 14305.62 | 3892.07 | 0.00 | 0.00 | 0.00 |
| 191+50 | 19150.00 | 50.00 | 1.26 | 0.00 | 1.54 | 0.00 | 3.20 | 0.00 | 4.92 | 0.00 | 14308.83 | 3897.97 | 0.00 | 0.00 | 0.00 |
| 192+00 | 19200.00 | 50.00 | 6.88 | 0.00 | 0.59 | 0.00 | 7.54 | 0.00 | 1.97 | 0.00 | 14316.36 | 3900.34 | 0.00 | 0.00 | 0.00 |
| 192+50 | 19250.00 | 50.00 | 6.77 | 0.00 | 0.33 | 0.00 | 12.64 | 0.00 | 0.85 | 0.00 | 14329.00 | 3901.36 | 0.00 | 0.00 | 0.00 |
| 193+00 | 19300.00 | 50.00 | 12.31 | 0.00 | 0.00 | 0.00 | 17.67 | 0.00 | 0.31 | 0.00 | 14346.67 | 3901.73 | 0.00 | 0.00 | 0.00 |
| 193+01 BK | 19301.32 | 1.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 | 0.00 | 0.00 | 0.00 | 14346.97 | 3901.73 | 0.00 | 0.00 | 0.00 |
| | | | | | Column totals | | 14346.97 | 0.00 | 3251.44 | 0.00 | | | | | |

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

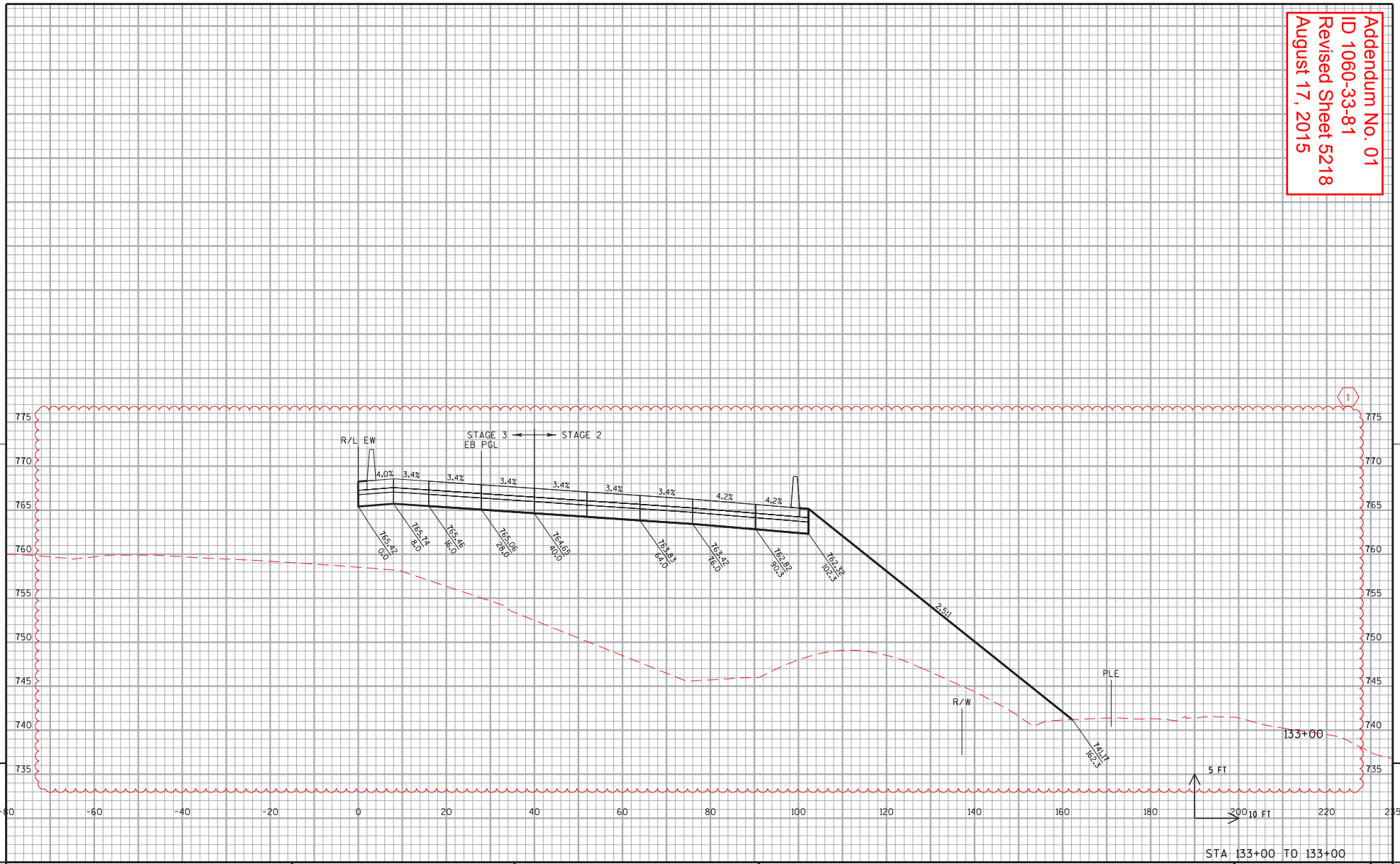
Addendum No. 01
ID 1060-33-81
Revised Sheet 4841
August 17, 2015



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4841 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 8/12/2015 4:41:50 PM PLOT BY : MSCCEJ PLOT NAME : 090101_ew217 PLOT SCALE : 1:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5218
August 17, 2015

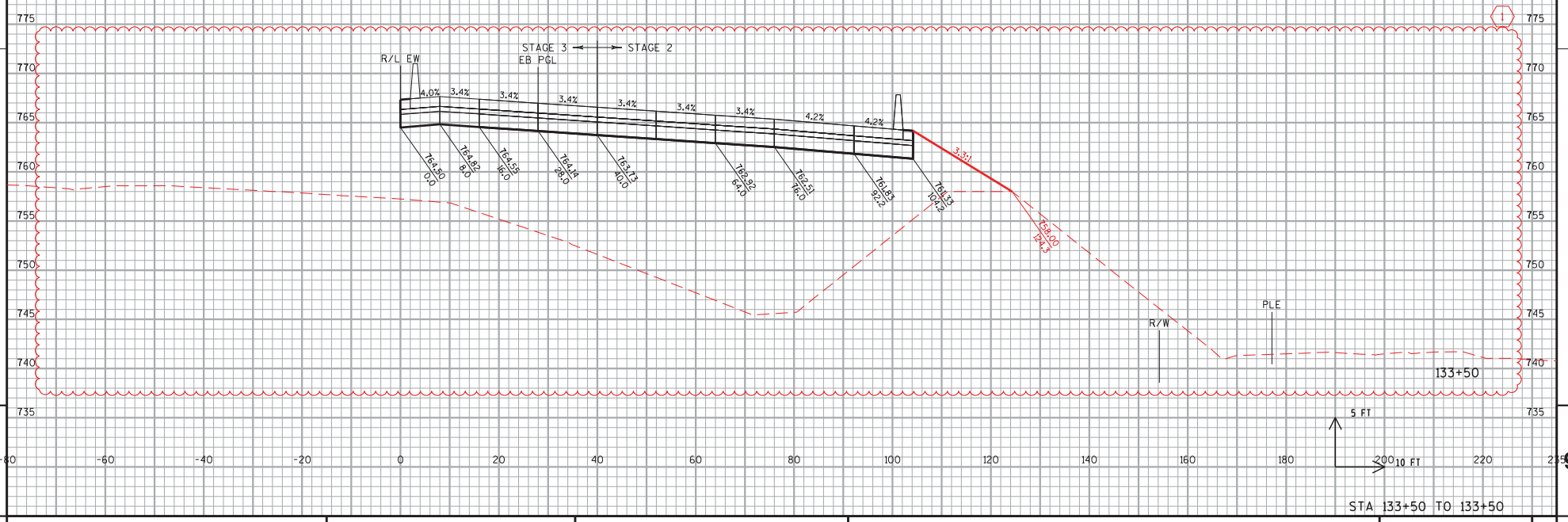



STA 133+00 TO 133+00

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: IH 94 EB | SHEET 5218 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090205_xs_EW_EB_W.dgn
PLOT DATE : 11-AUG-2015 12:56
PLOT BY : mscsxp
PLOT NAME : 090205_xs_EW_EB_W5
PLOT SCALE : 20:1

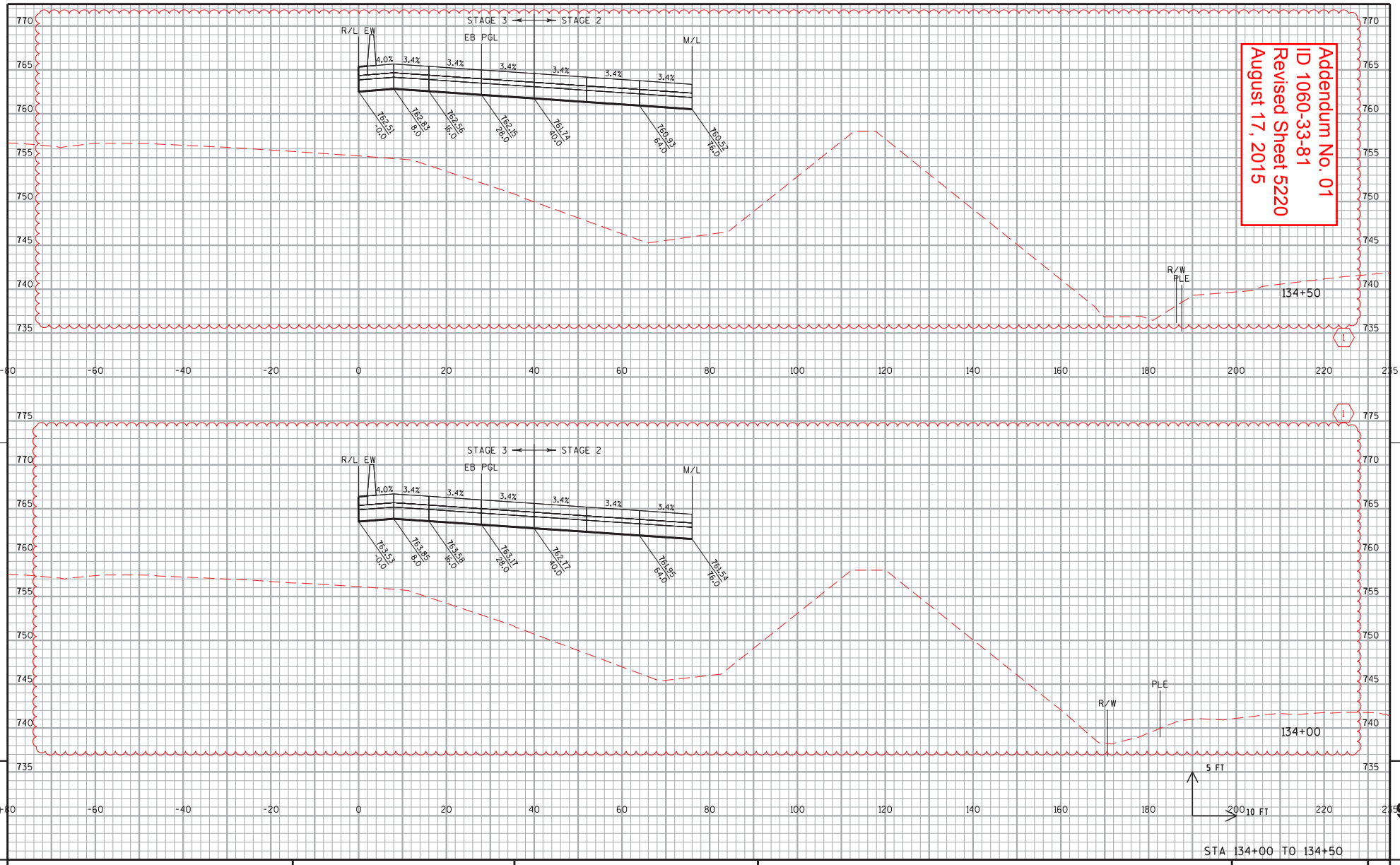
Addendum No. 01
ID 1060-33-81
Revised Sheet 5219
August 17, 2015




STA 133+50 TO 133+50

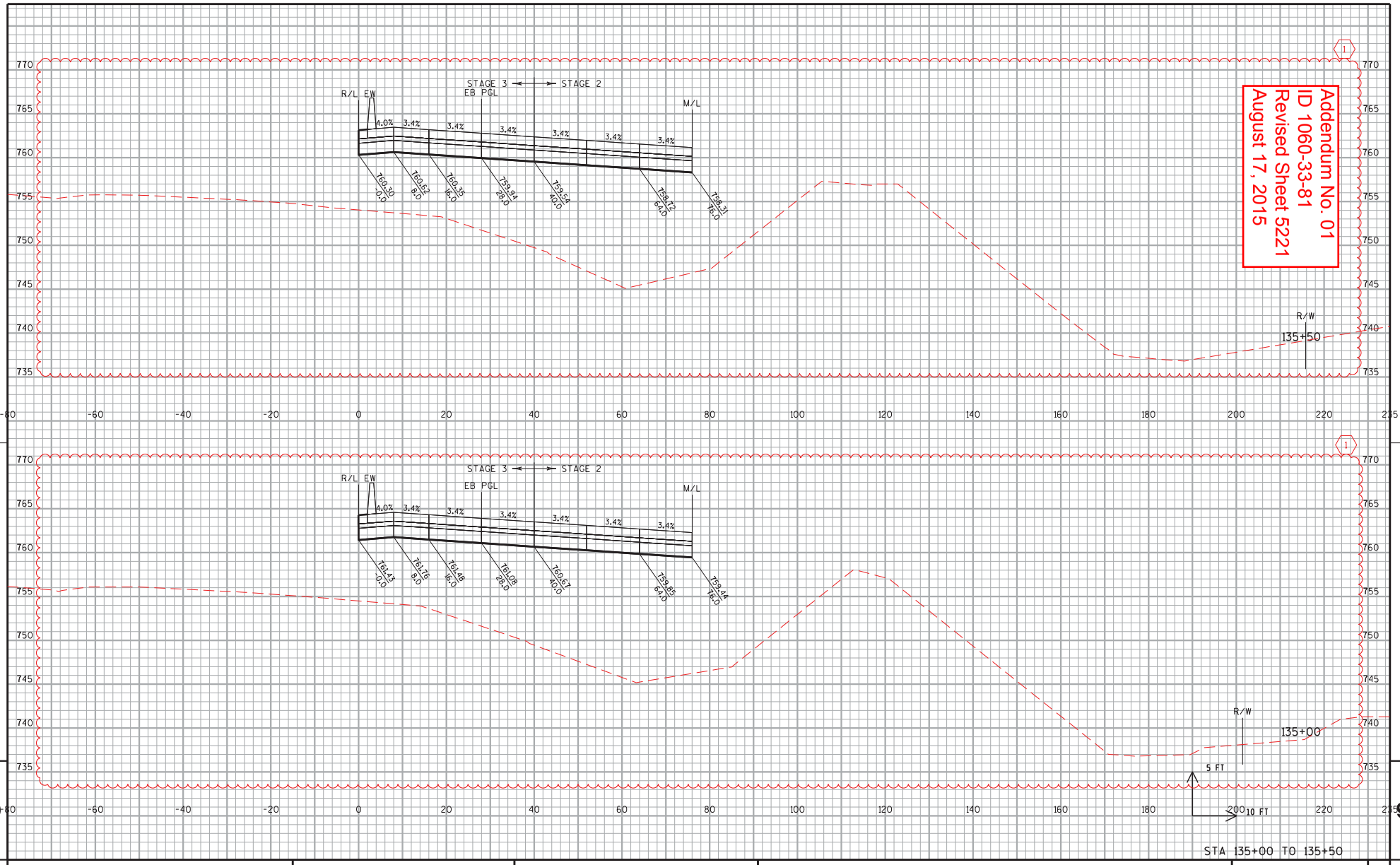
| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: IH 94 EB | SHEET 5219 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090205_xs_EW_EB_W.dgn PLOT DATE : 11-AUG-2015 12:56 PLOT BY : mscsxp PLOT NAME : 090205_xs_EW_EB_W5 PLOT SCALE : 20:1




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: IH 94 EB | SHEET 5220 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090205_xs_EW_EB_W.dgn PLOT DATE : 11-AUG-2015 12:56 PLOT BY : mscsxp PLOT NAME : 090205_xs_EW_EB_W5 PLOT SCALE : 20:1




Addendum No. 01
ID 1060-33-81
Revised Sheet 5221
August 17, 2015

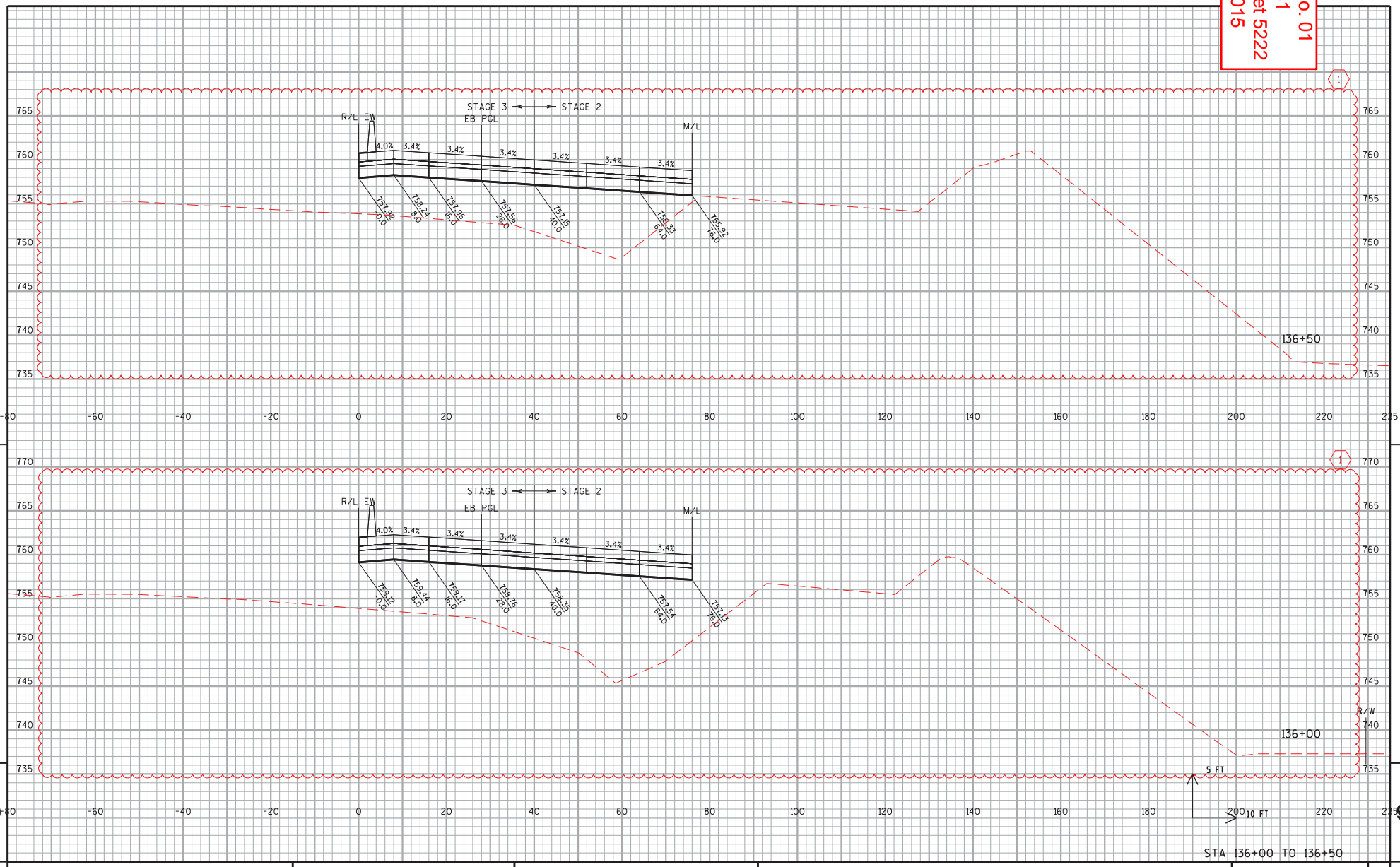
STA 135+00 TO 135+50

9 9

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: IH 94 EB | SHEET 5221 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090205_xs_EW_EB_W.dgn PLOT DATE : 11-AUG-2015 12:56 PLOT BY : mscsxp PLOT NAME : 090205_xs_EW_EB_W5 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5222
August 17, 2015



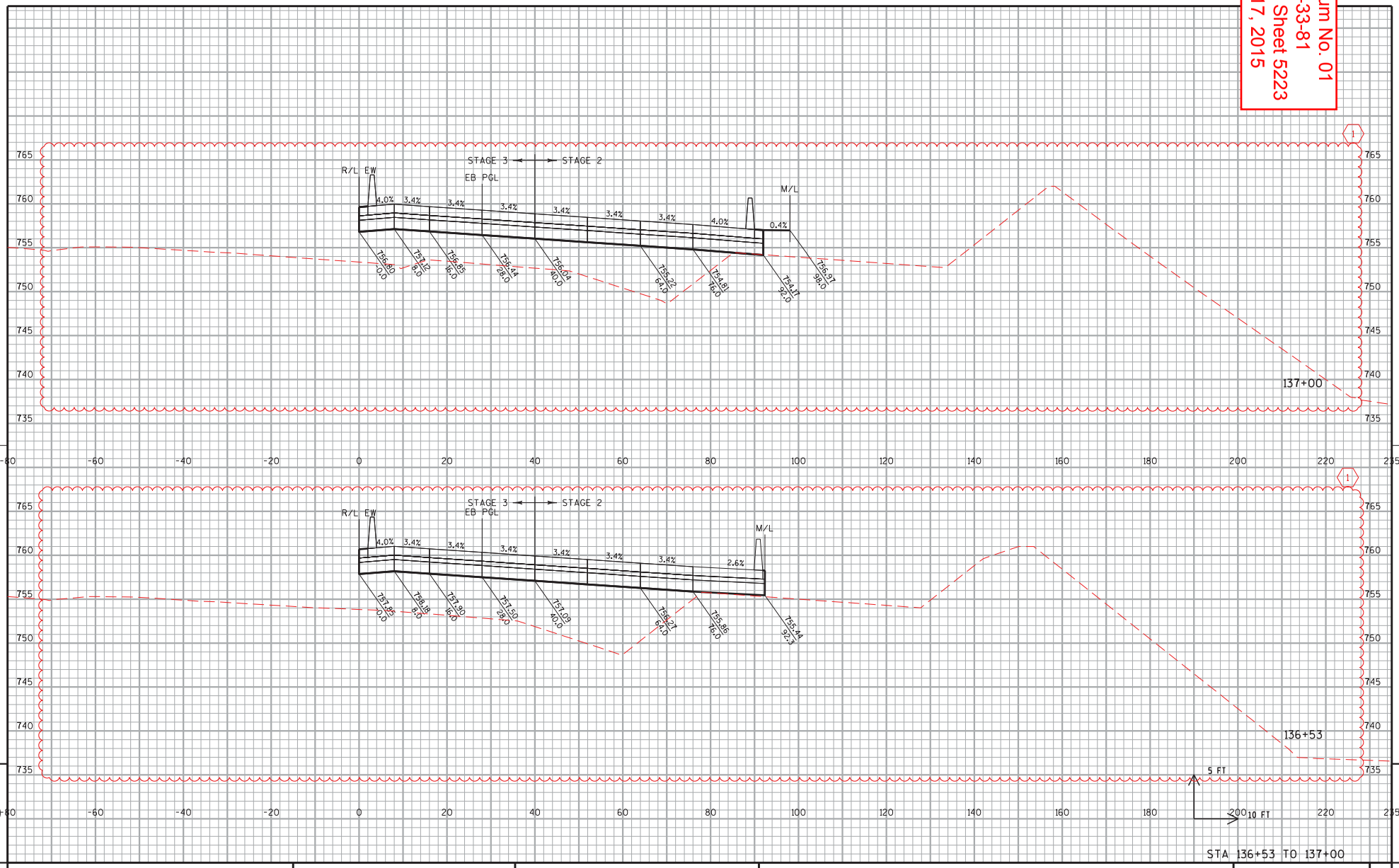

9 9

STA 136+00 TO 136+50

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: IH 94 EB | SHEET 5222 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090205_xs_EW_EB_W.dgn PLOT DATE : 11-AUG-2015 12:56 PLOT BY : mscsxp PLOT NAME : 090205_xs_EW_EB_W5A PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5223
August 17, 2015



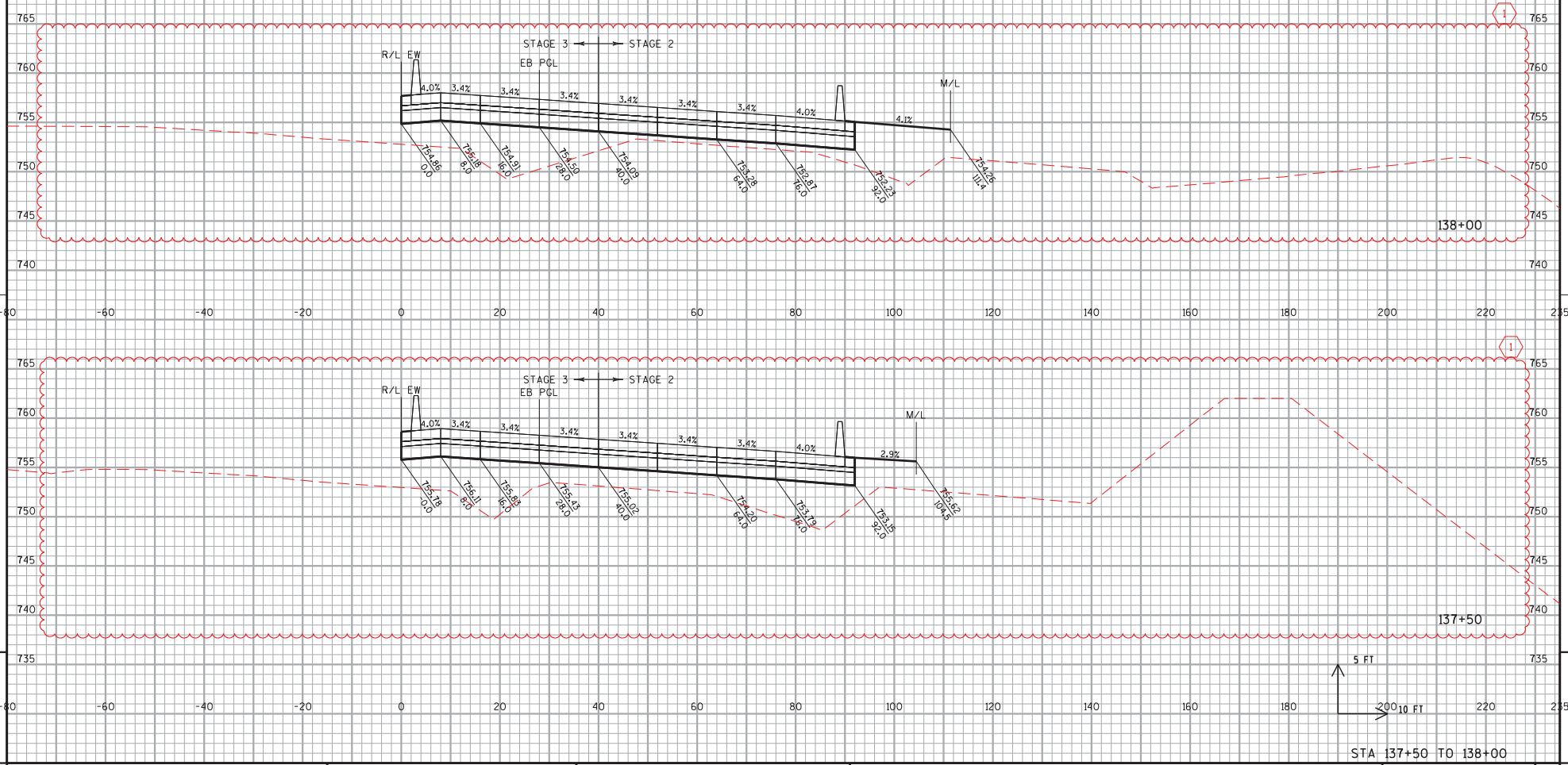

9 9

STA 136+53 TO 137+00

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: IH 94 EB | SHEET 5223 | E |
|---|---|---|---|---|---|


FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090205_xs_EW_EB_W.dgn
PLOT DATE : 11-AUG-2015 12:56
PLOT BY : mscsxp
PLOT NAME : 090205_xs_EW_EB_W5
PLOT SCALE : 20:1
WISDOT/CADDS SHEET 21

Addendum No. 01
ID 1060-33-81
Revised Sheet 5224
August 17, 2015




9

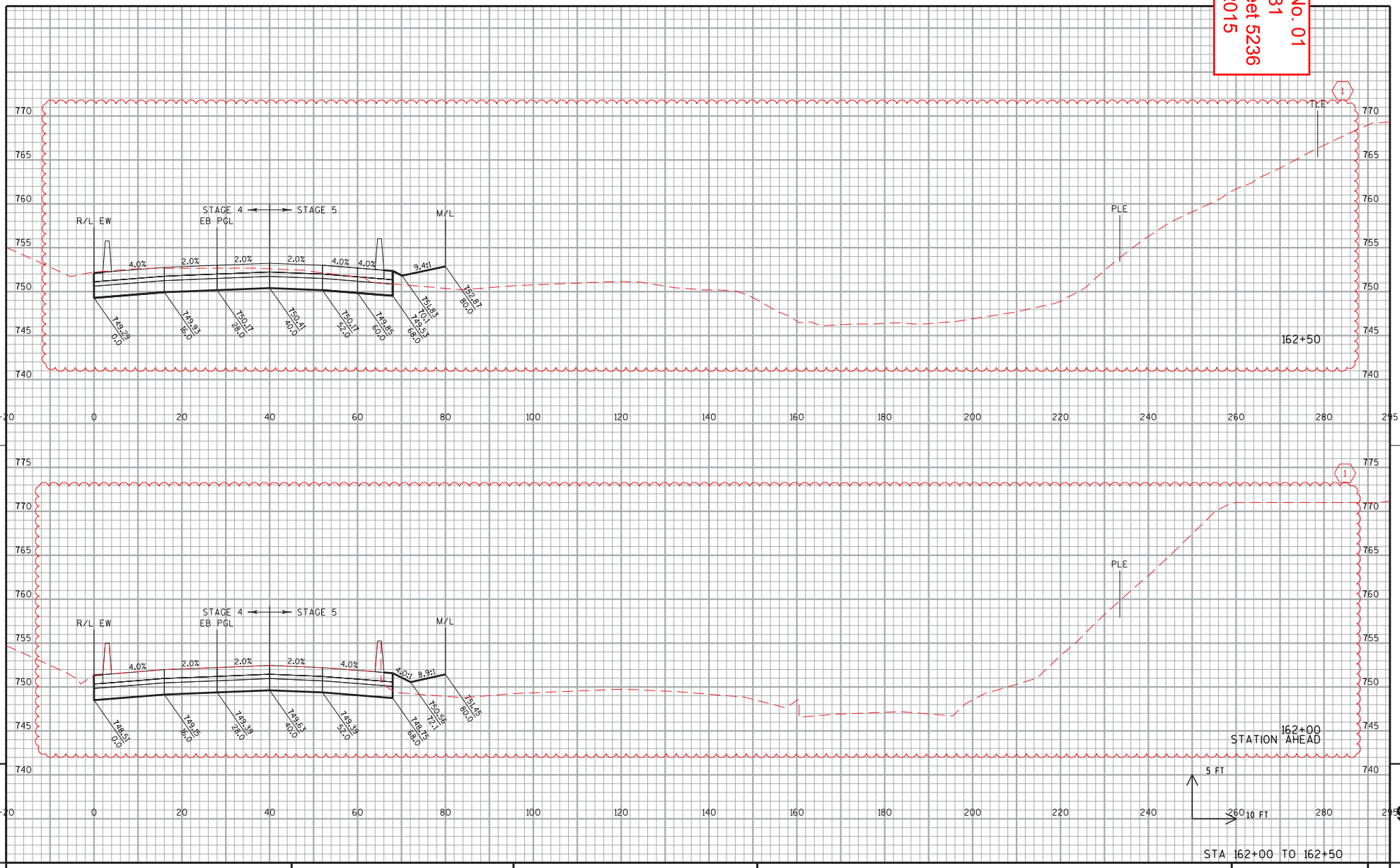
9

STA 137+50 TO 138+00

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: IH 94 EB | SHEET 5224 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090205_xs_EW_EB_W.dgn
PLOT DATE : 11-AUG-2015 12:56
PLOT BY : mscsxp
PLOT NAME : 090205_xs_EW_EB_W5
PLOT SCALE : 20:1

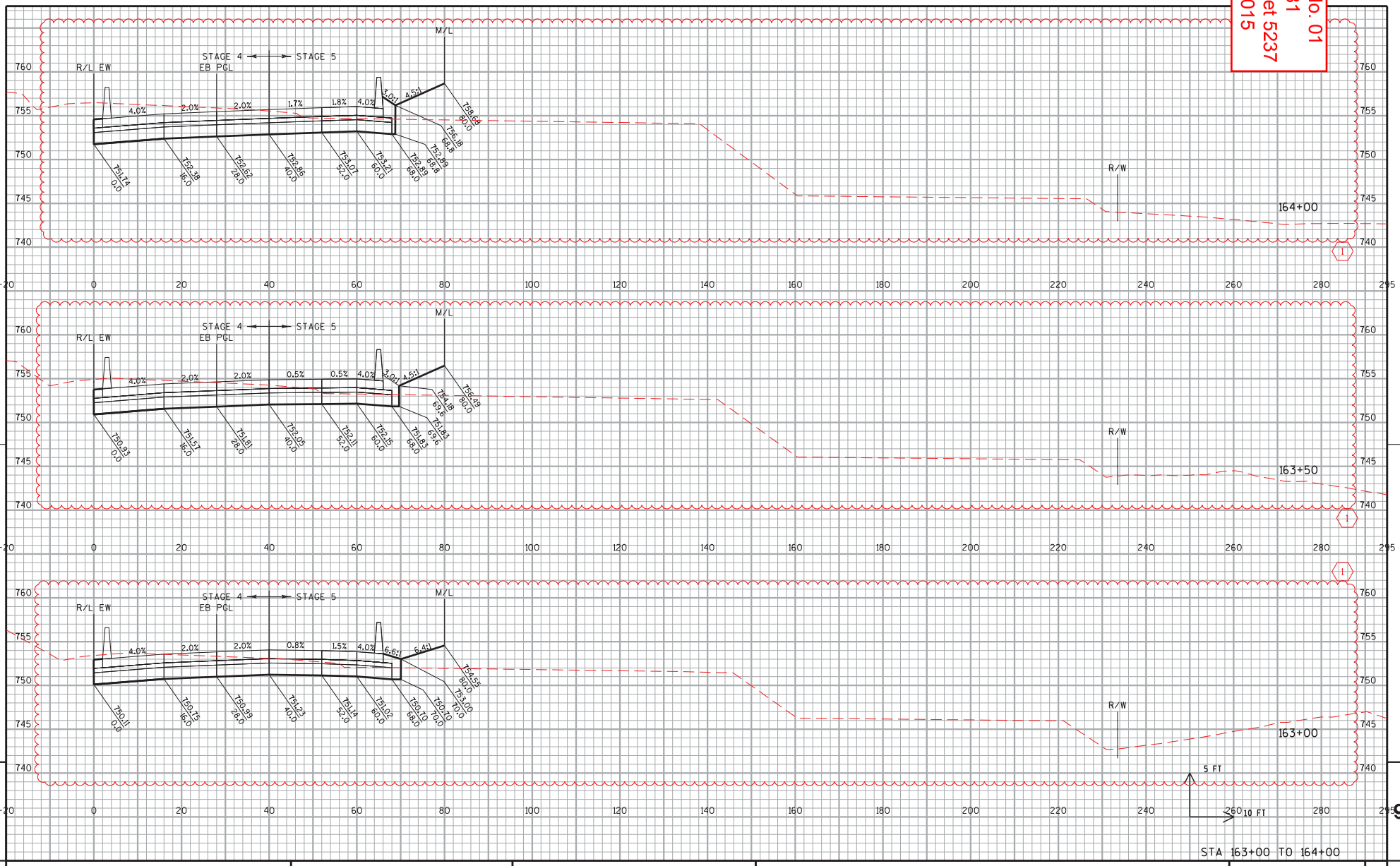
Addendum No. 01
ID 1060-33-81
Revised Sheet 5236
August 17, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: IH 94 EB | SHEET 5236 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090205_xs_EW_EB_W.dgn PLOT DATE : 12-AUG-2015 09:00 PLOT BY : mscsxp PLOT NAME : 090205_xs_EW_EB_W6 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5237
August 17, 2015

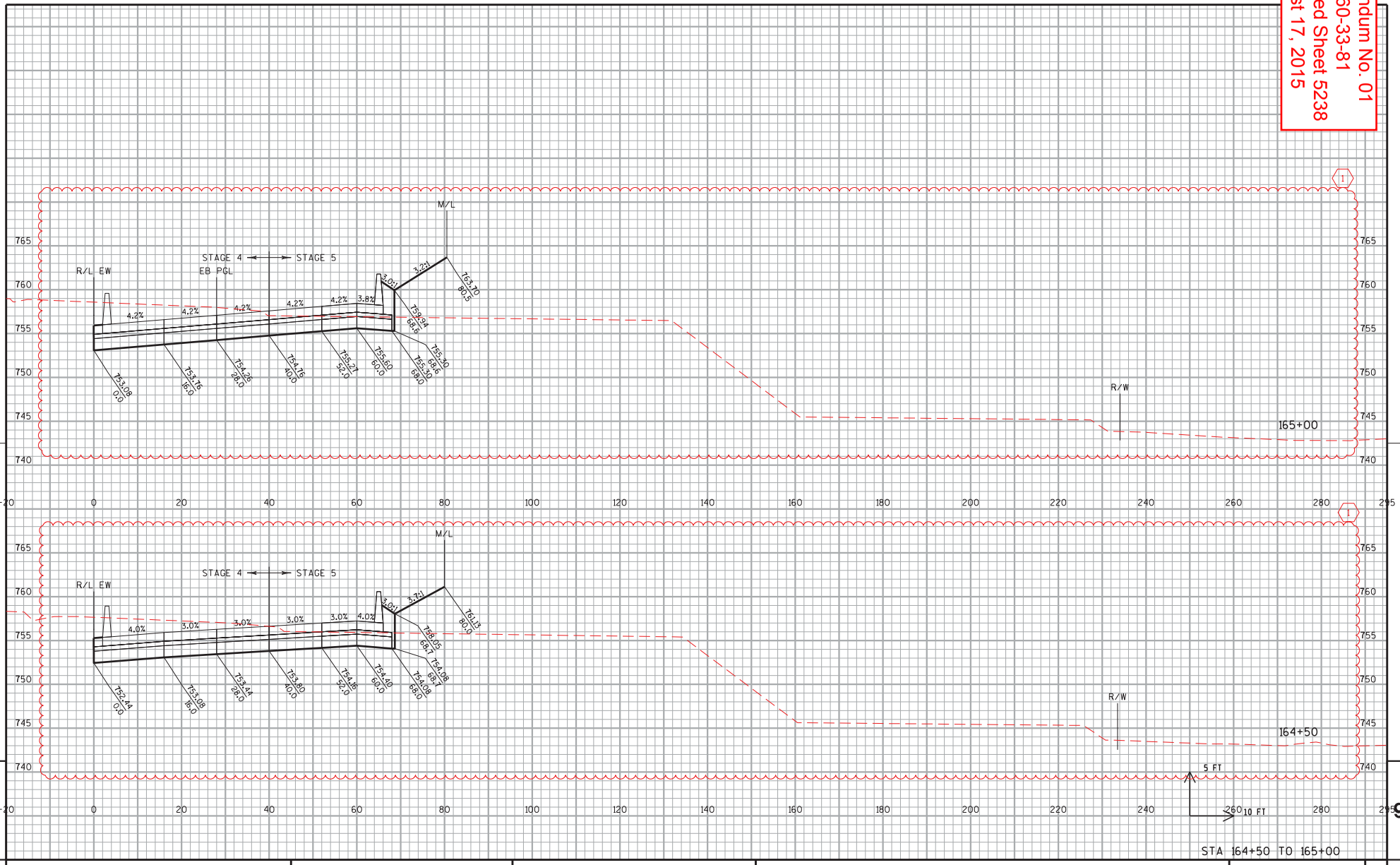



STA 163+00 TO 164+00

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: IH 94 EB | SHEET 5237 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090205_xs_EW_EB_W.dgn PLOT DATE : 12-AUG-2015 09:00 PLOT BY : mscsxp PLOT NAME : 090205_xs_EW_EB_W6P PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5238
August 17, 2015



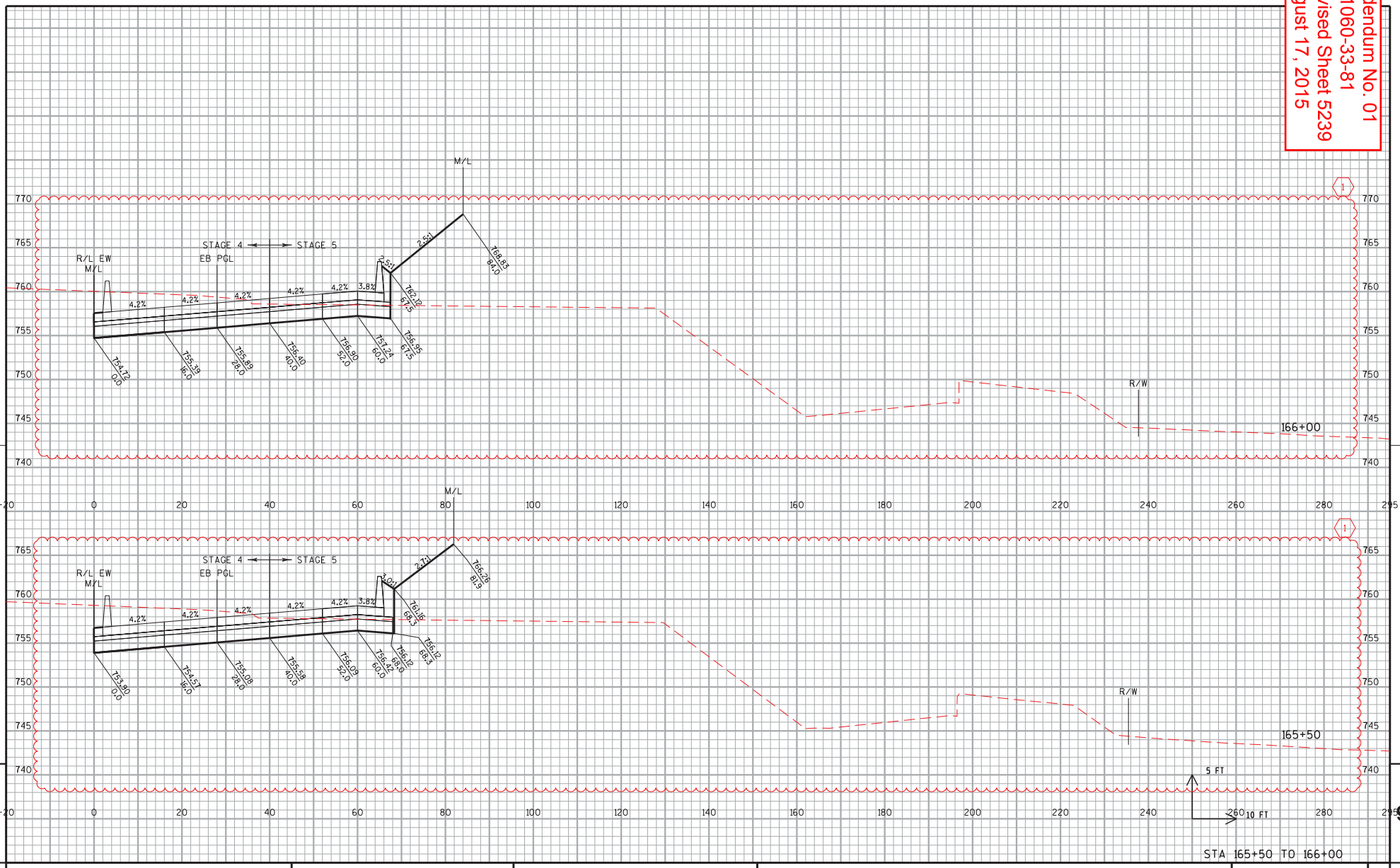

9

9

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: IH 94 EB | SHEET 5238 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090205_xs_EW_EB_W.dgn PLOT DATE : 12-AUG-2015 09:00 PLOT BY : mscsxp PLOT NAME : 090205_xs_EW_EB_W.PLOT SCALE : 20:1

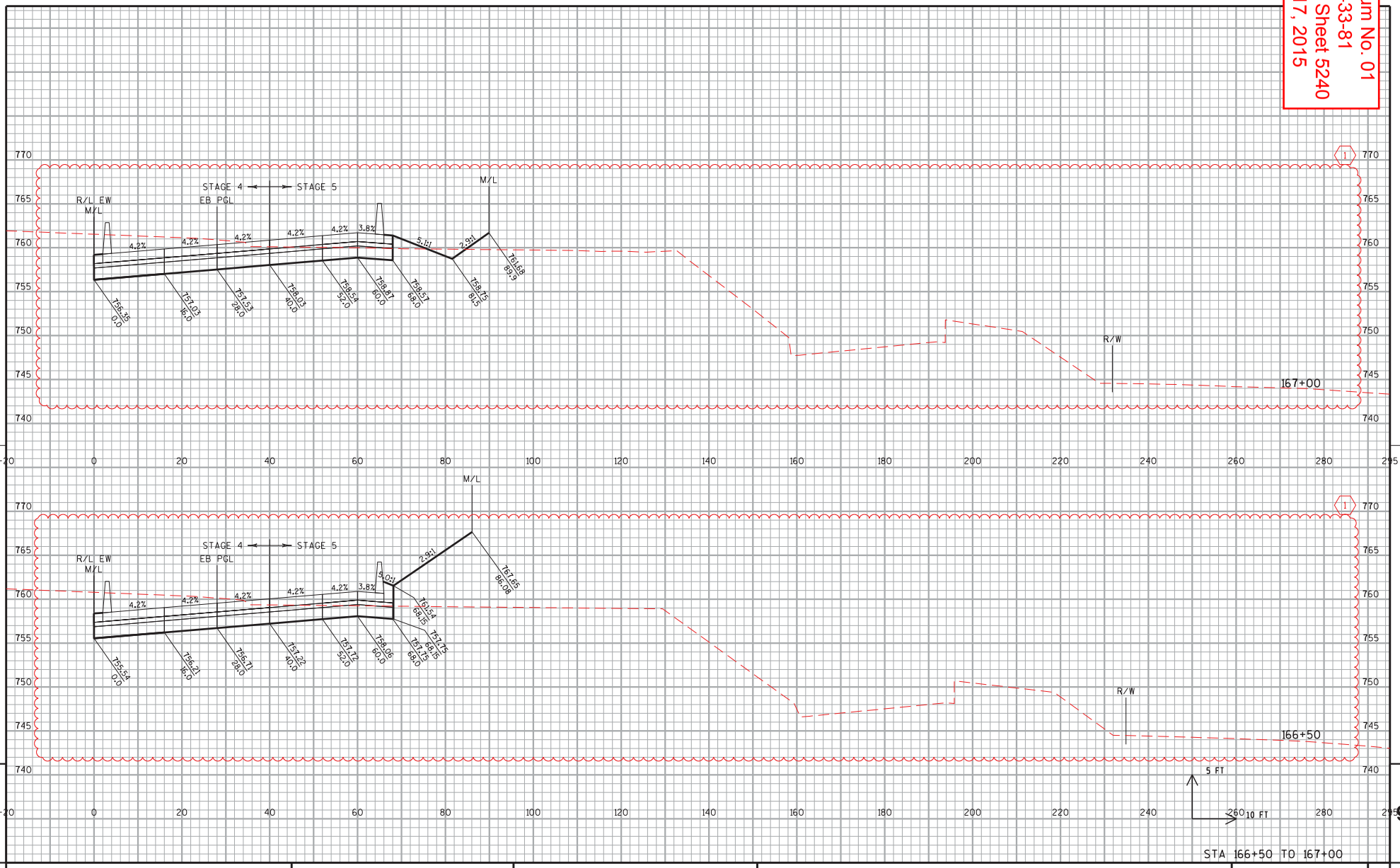
Addendum No. 01
ID 1060-33-81
Revised Sheet 5239
August 17, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: IH 94 EB | SHEET 5239 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090205_xs_EW_EB_W.dgn PLOT DATE : 12-AUG-2015 09:00 PLOT BY : mscsxp PLOT NAME : 090205_xs_EW_EB_W7 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5240
August 17, 2015

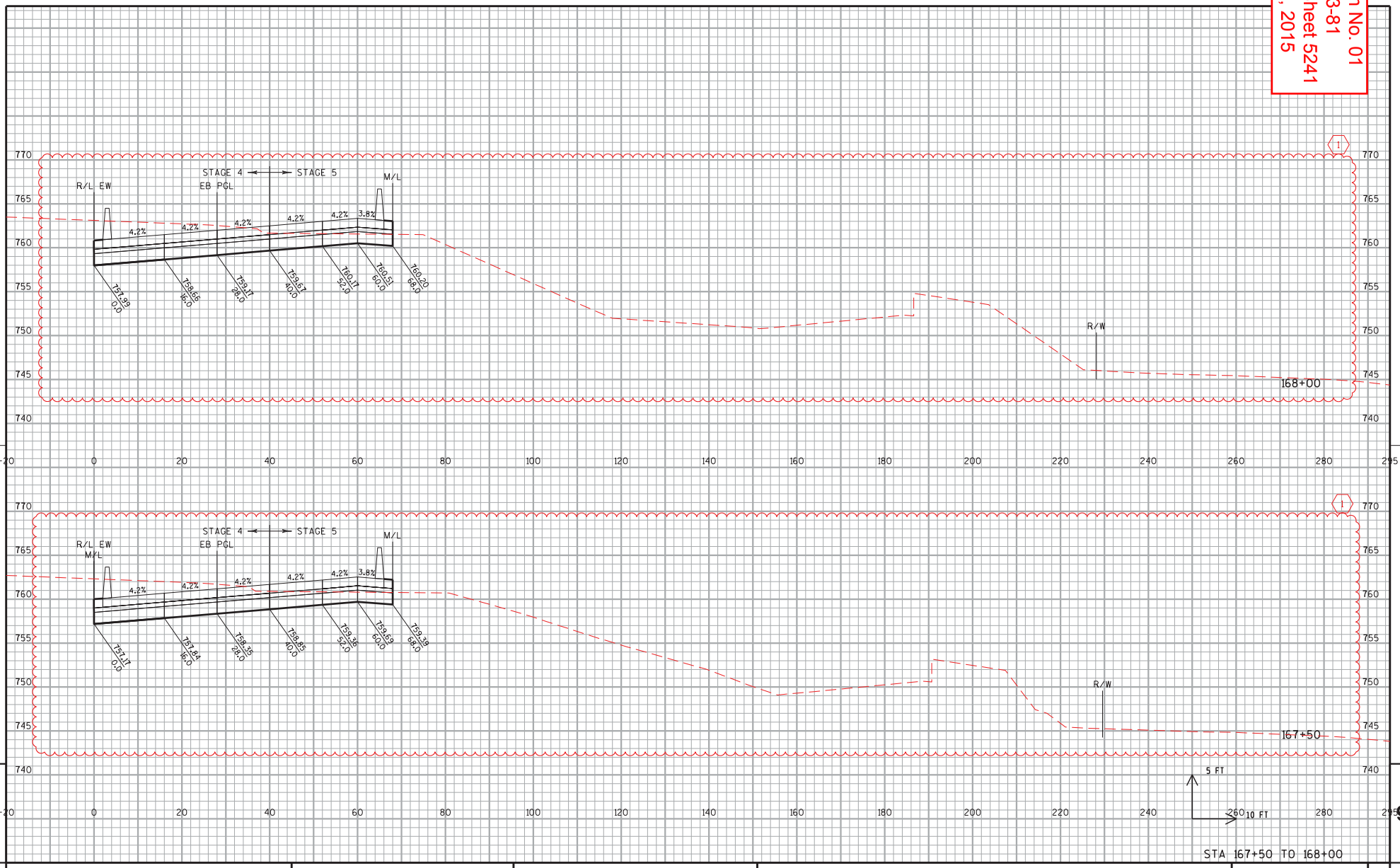



STA 166+50 TO 167+00

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: IH 94 EB | SHEET 5240 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090205_xs_EW_EB_W.dgn PLOT DATE : 12-AUG-2015 09:00 PLOT BY : mscsxp PLOT NAME : 090205_xs_EW_EB_W2 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5241
August 17, 2015

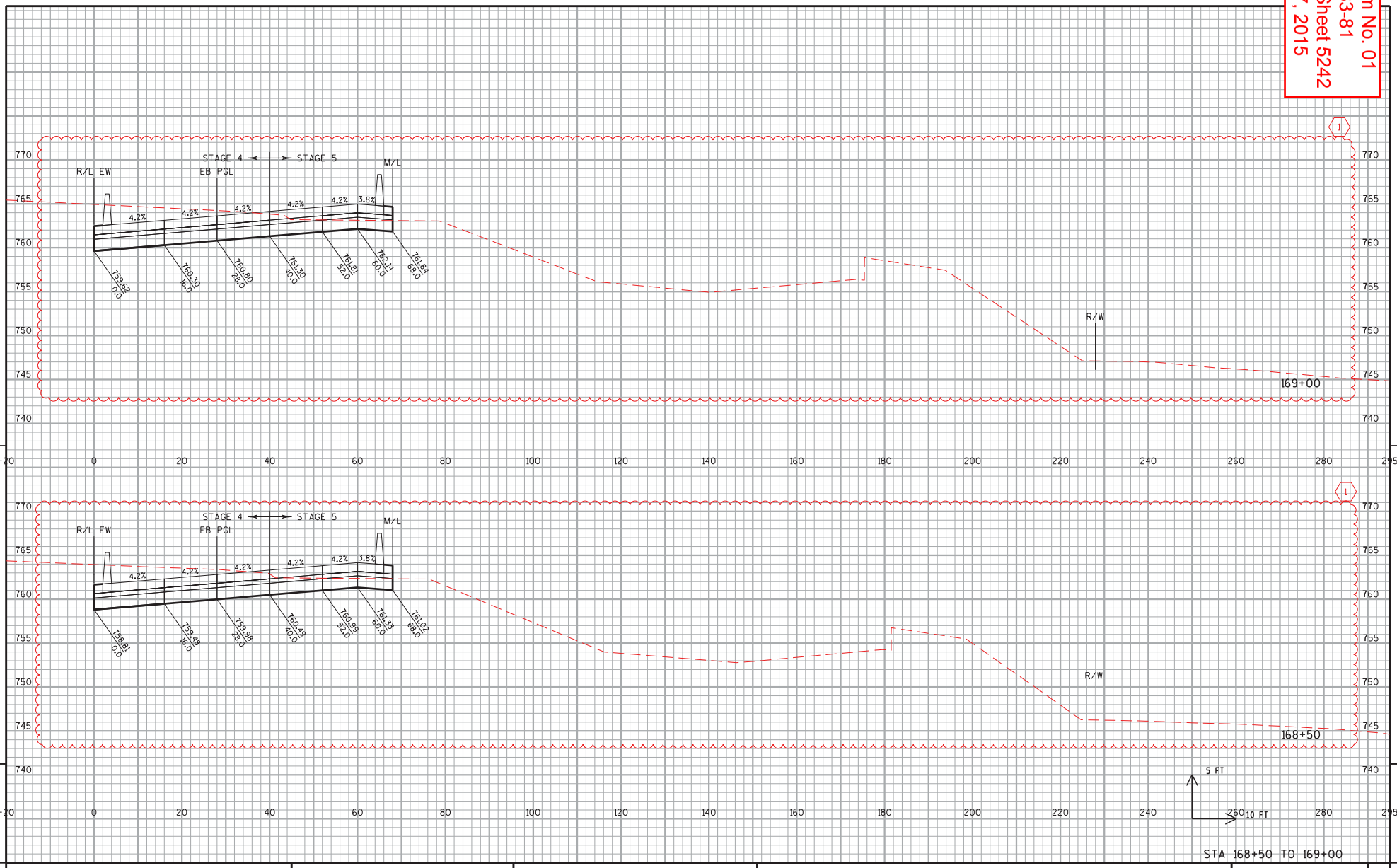



9 9

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: IH 94 EB | SHEET 5241 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090205_xs_EW_EB_W.dgn PLOT DATE : 12-AUG-2015 09:00 PLOT BY : mscsxp PLOT NAME : 090205_xs_EW_EB_W78 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5242
August 17, 2015




9

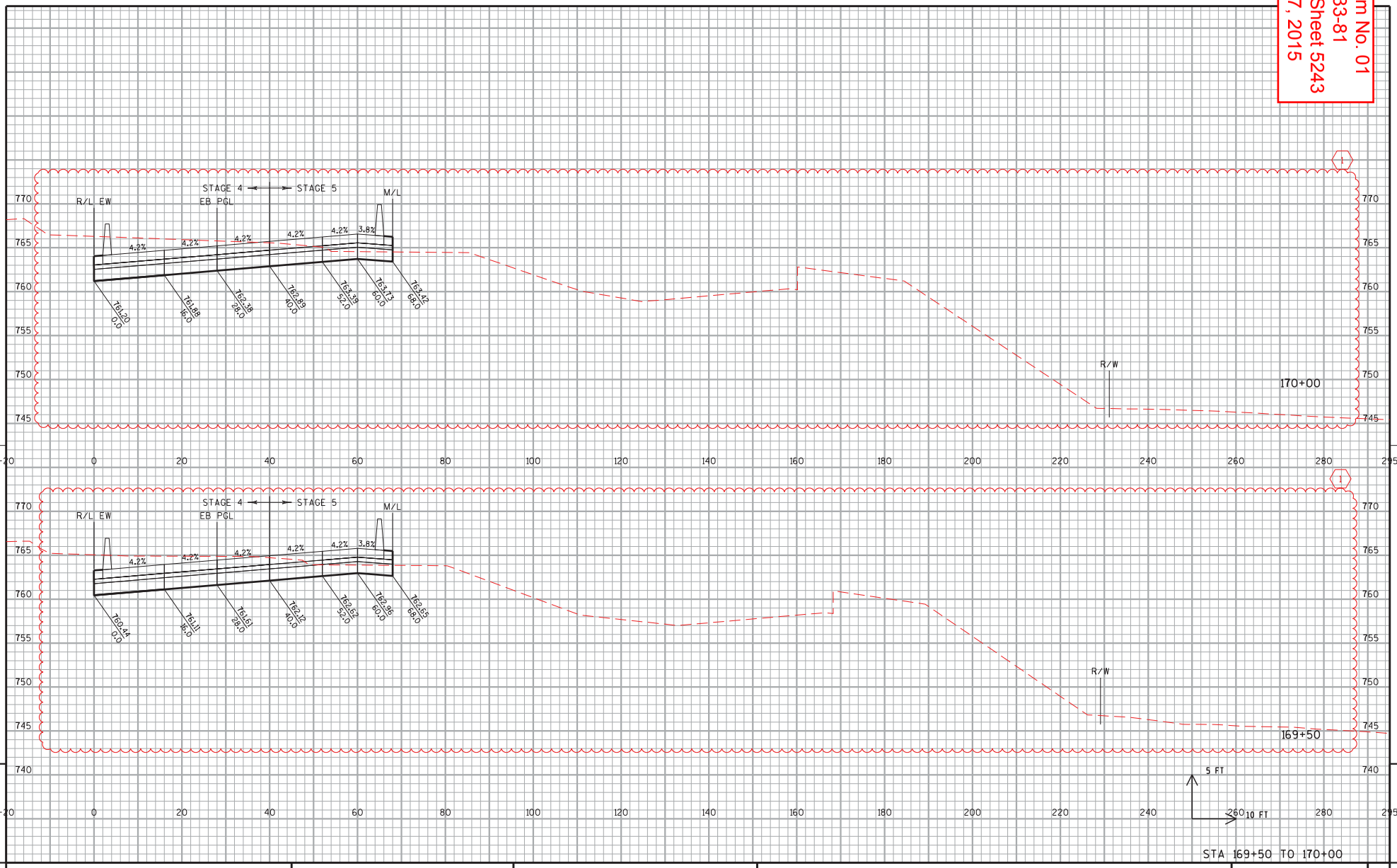
9

STA 168+50 TO 169+00

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: IH 94 EB | SHEET 5242 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090205_xs_EW_EB_W.dgn PLOT DATE : 12-AUG-2015 09:00 PLOT BY : mscsxp PLOT NAME : 090205_xs_EW_EB_W7 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5243
August 17, 2015

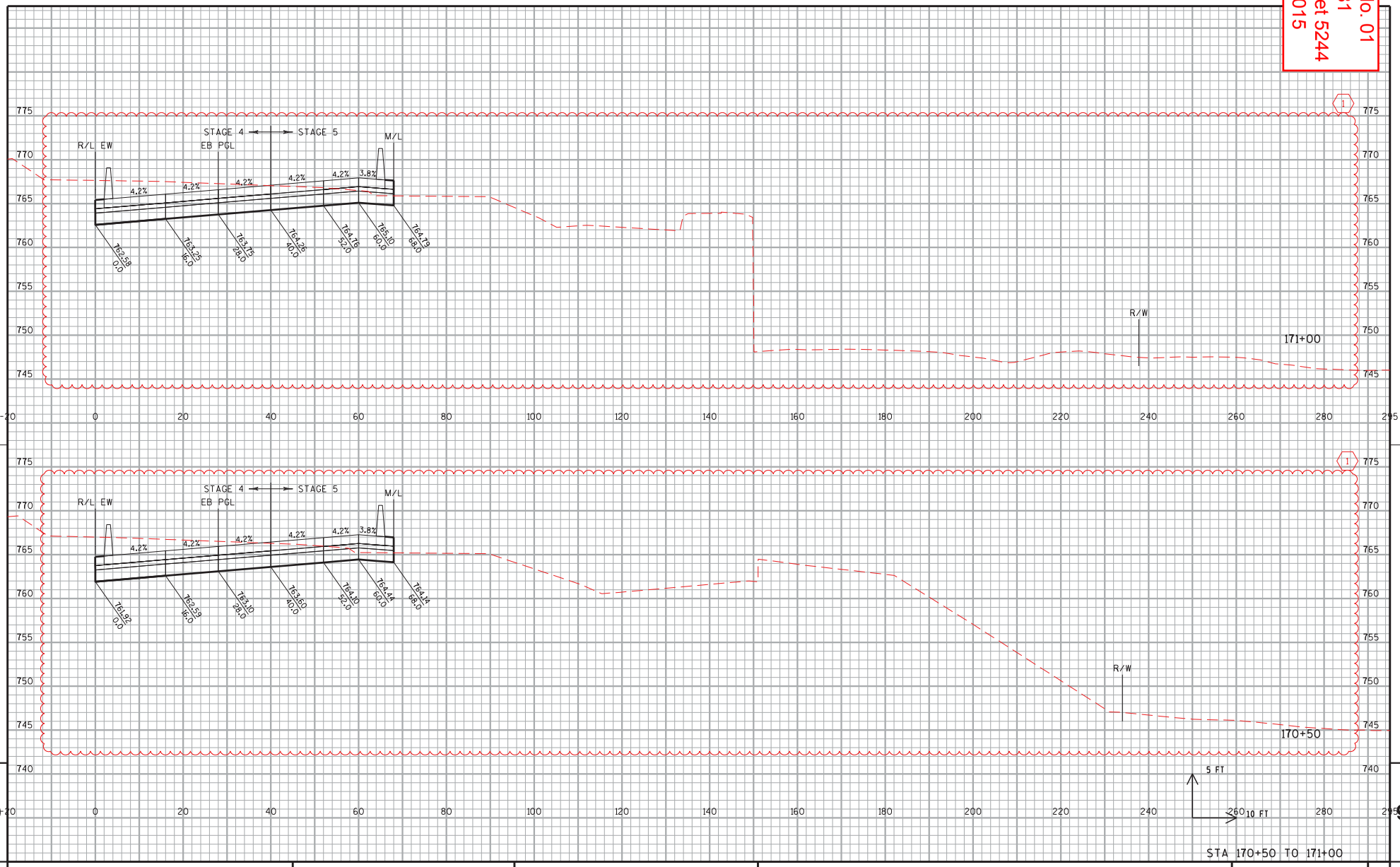



STA 169+50 TO 170+00

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: IH 94 EB | SHEET 5243 | E |
|---|---|---|---|---|---|

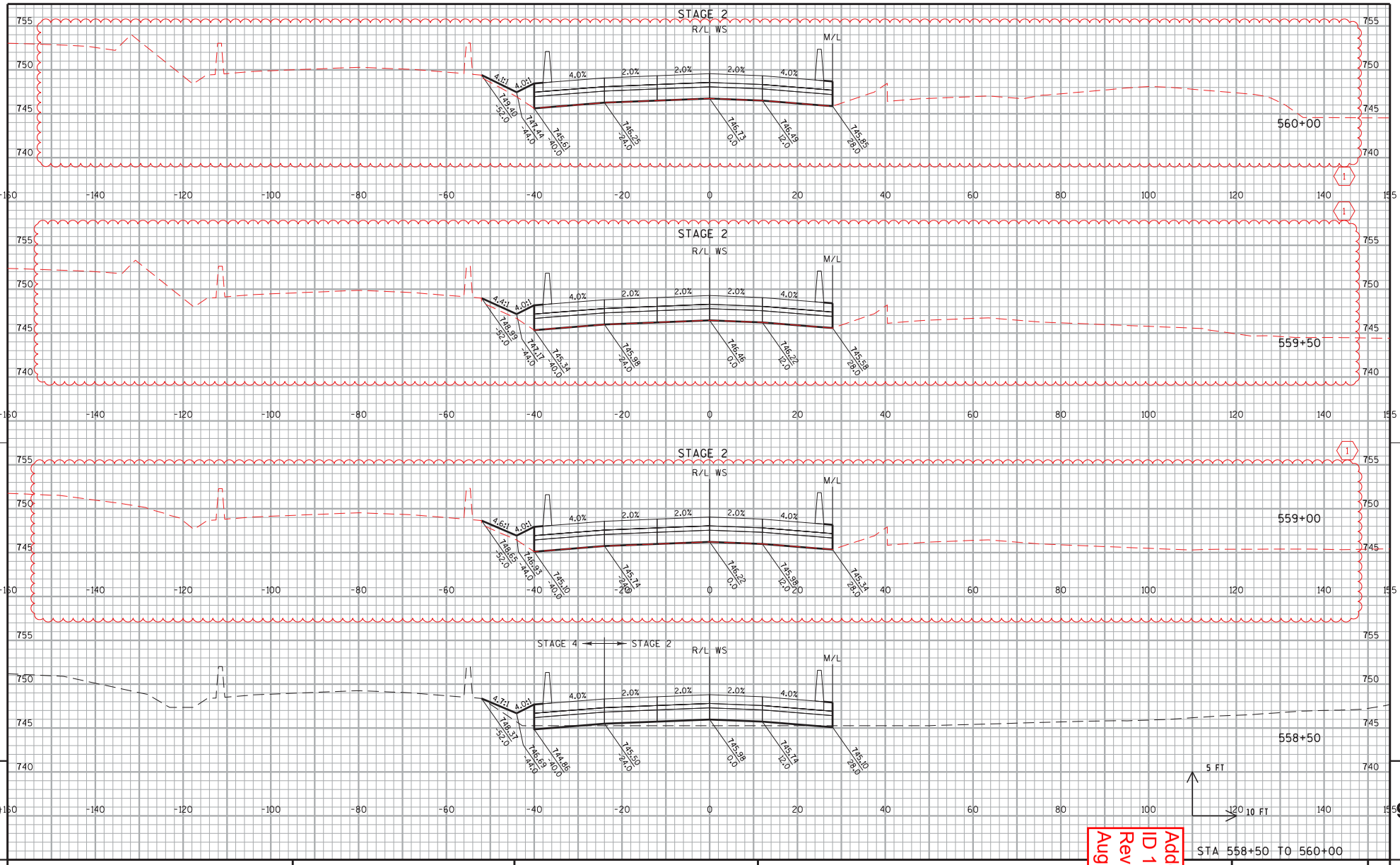
FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090205_xs_EW_EB_W.dgn
PLOT DATE : 12-AUG-2015 09:00
PLOT BY : mscsxp
PLOT NAME : 090205_xs_EW_EB_W75
PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5244
August 17, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: IH 94 EB | SHEET 5244 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090205_xs_EW_EB_W.dgn PLOT DATE : 12-AUG-2015 09:00 PLOT BY : mscsxp PLOT NAME : 090205_xs_EW_EB_W7 PLOT SCALE : 20:1




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP WS | SHEET 5473 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090302_xs_WS.dgn PLOT DATE : 11-AUG-2015 12:43 PLOT BY : mscsxp PLOT NAME : 090302_xs_WS15

WISDOT/CADDS SHEET 21

Addendum No. 01
ID 1060-33-81
Revised Sheet 5473
August 17, 2015

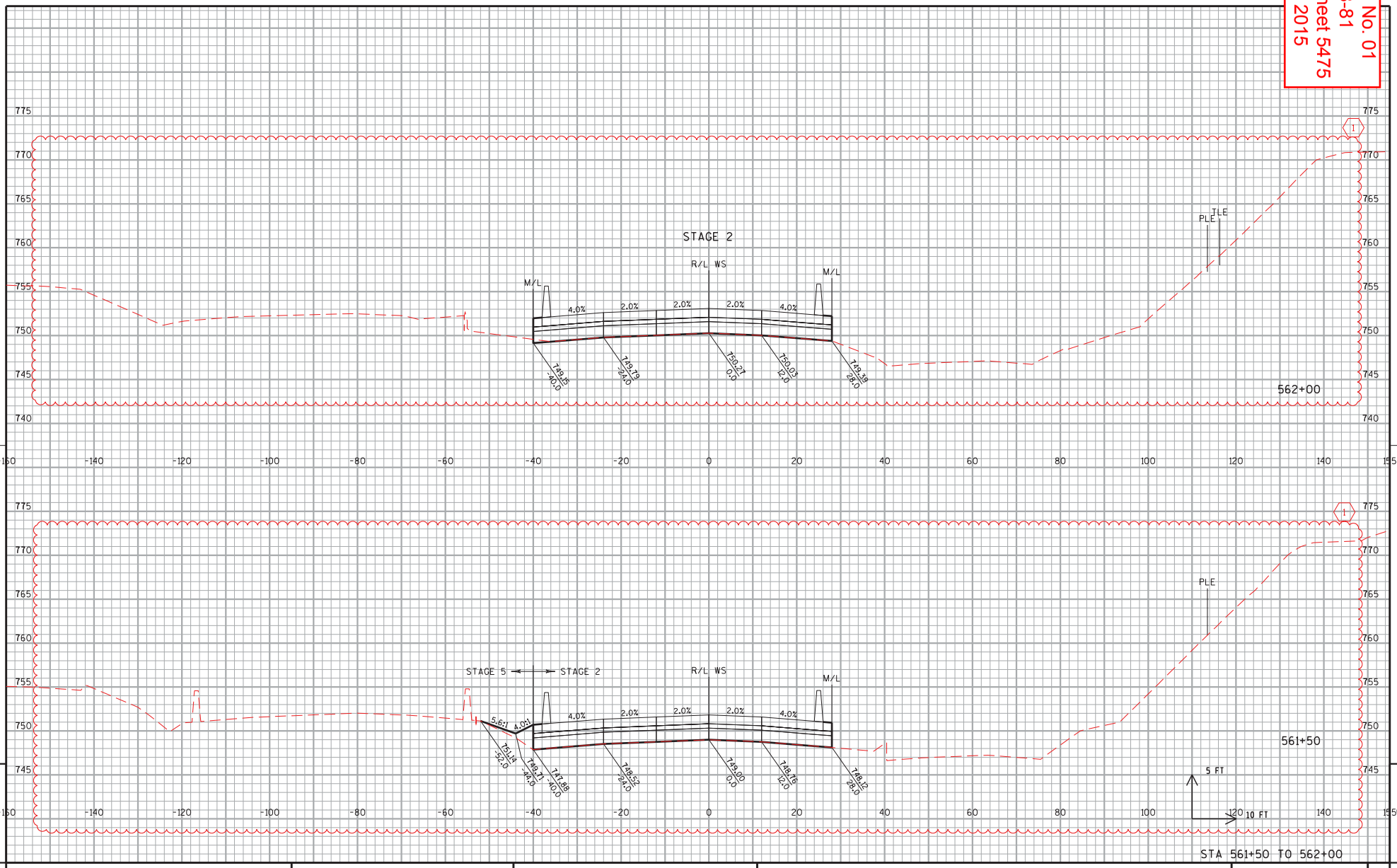
Addendum No. 01
ID 1060-33-81
Revised Sheet 5474
August 17, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP WS | SHEET 5474 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090302_xs_WS.dgn PLOT DATE : 11-AUG-2015 12:43 PLOT BY : mscsxp PLOT NAME : 090302_xs_WS16 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5475
August 17, 2015



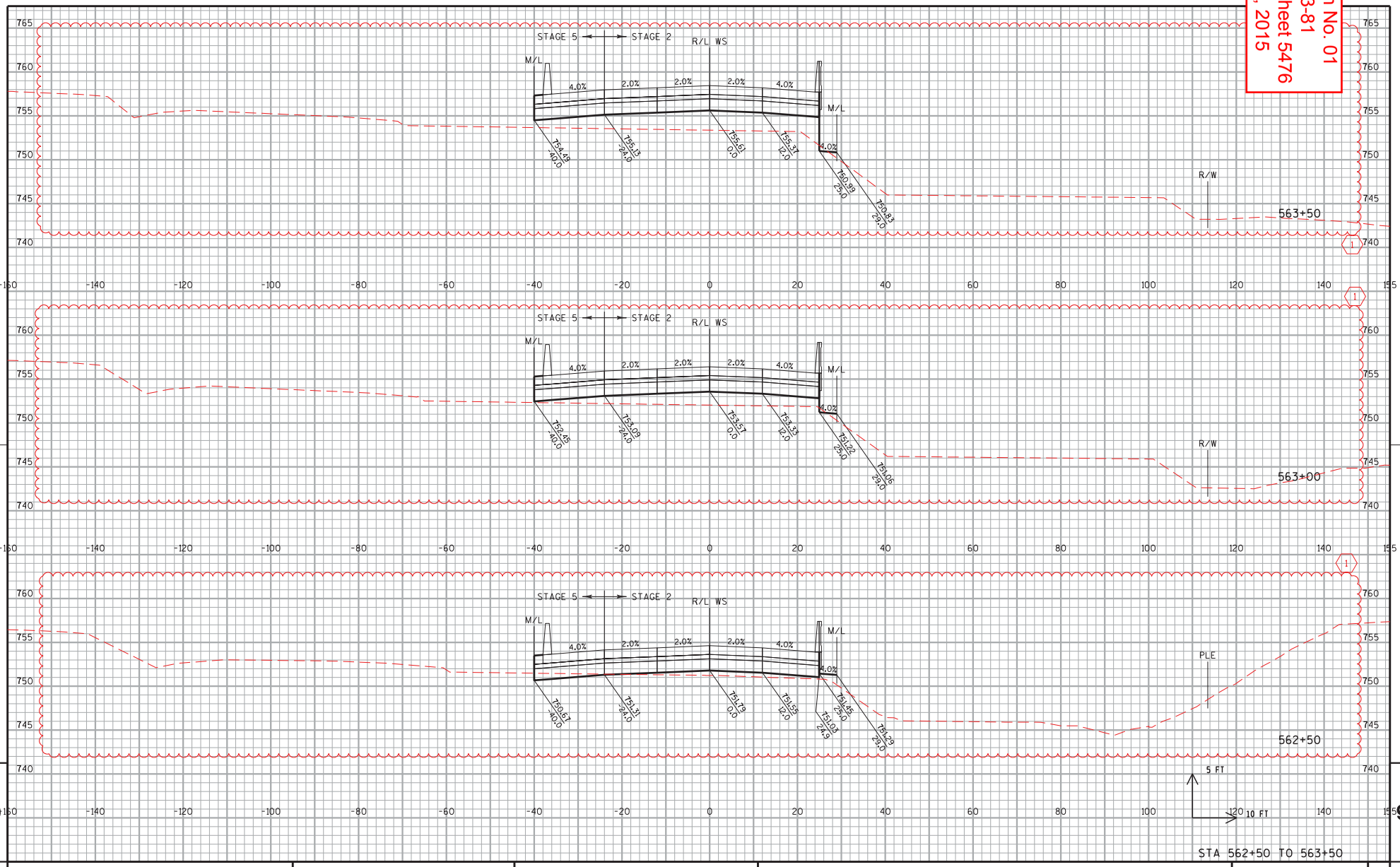

9 9

STA 561+50 TO 562+00

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP WS | SHEET 5475 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090302_xs_WS.dgn PLOT DATE : 11-AUG-2015 12:43 PLOT BY : mscsxp PLOT NAME : 090302_xs_WS17 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5476
August 17, 2015



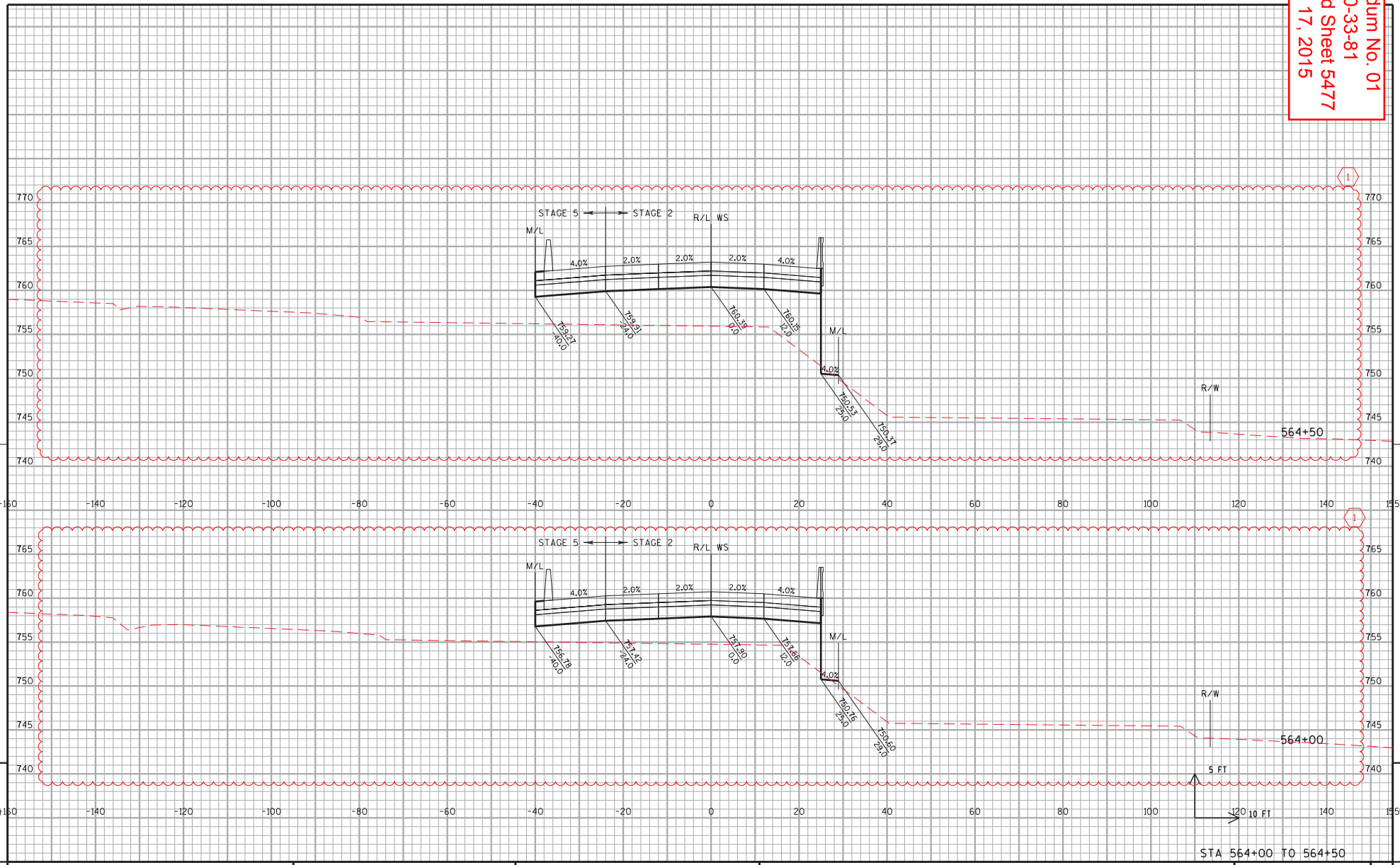

STA 562+50 TO 563+50

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP WS | SHEET 5476 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090302_xs_WS.dgn PLOT DATE : 11-AUG-2015 12:43 PLOT BY : mscsxp PLOT NAME : 090302_xs_WS18 PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

Addendum No. 01
ID 1060-33-81
Revised Sheet 5477
August 17, 2015

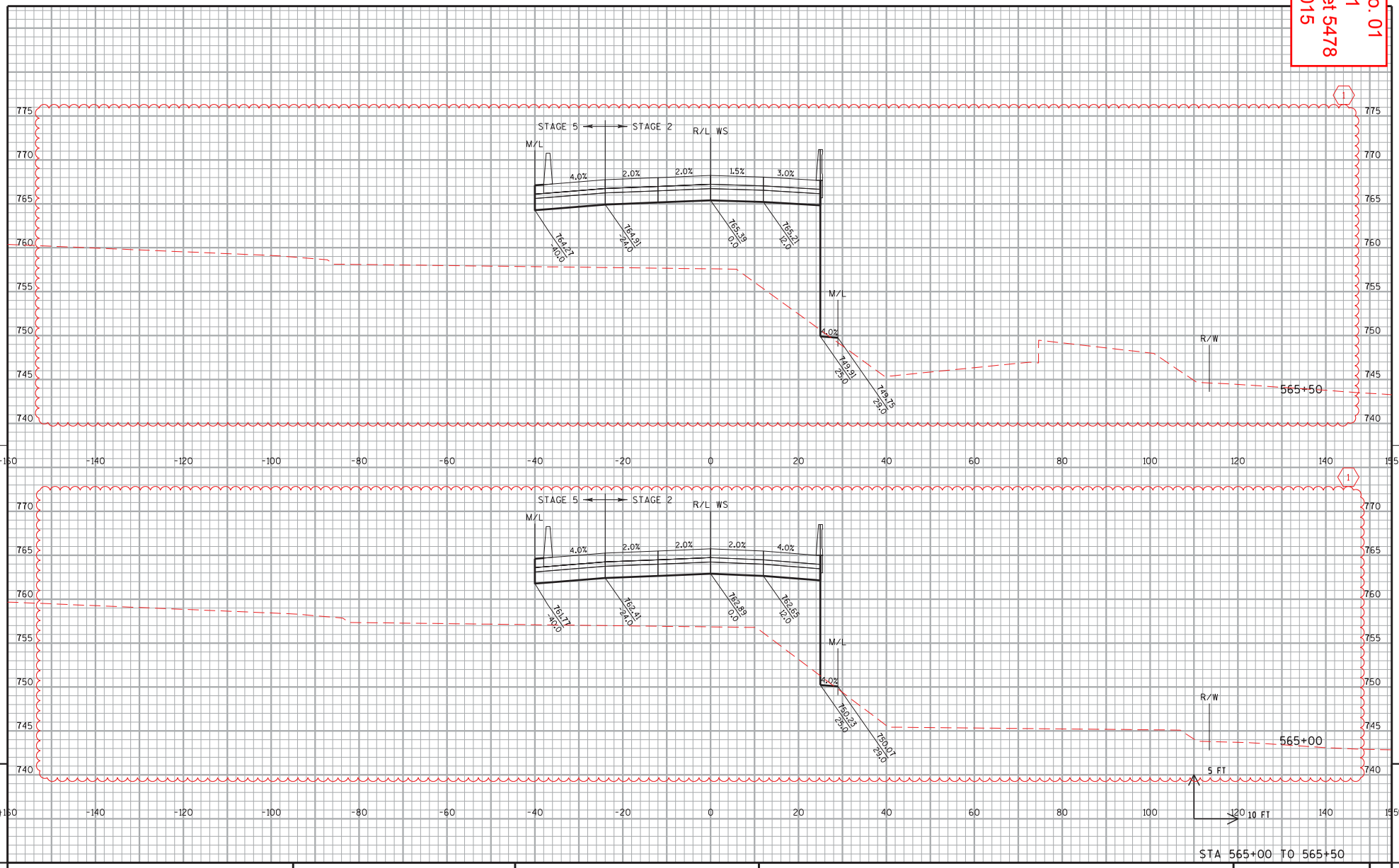



9 9

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP WS | SHEET 5477 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090302_xs_WS.dgn PLOT DATE : 11-AUG-2015 12:43 PLOT BY : mscsxp PLOT NAME : 090302_xs_WS19 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5478
August 17, 2015



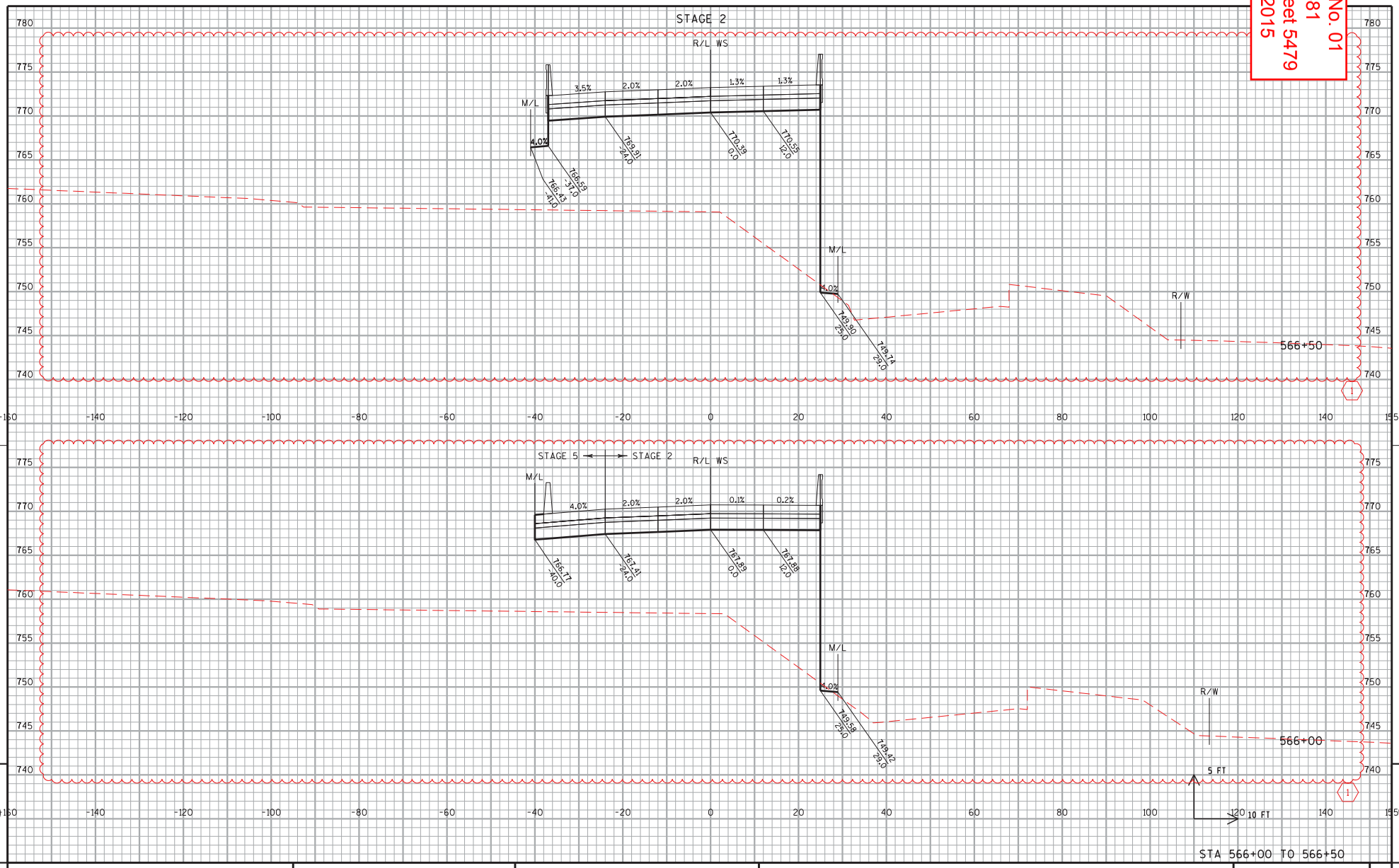

9 9

STA 565+00 TO 565+50

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP WS | SHEET 5478 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090302_xs_WS.dgn PLOT DATE : 11-AUG-2015 12:43 PLOT BY : mscsxp PLOT NAME : 090302_xs_WS20 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5479
August 17, 2015



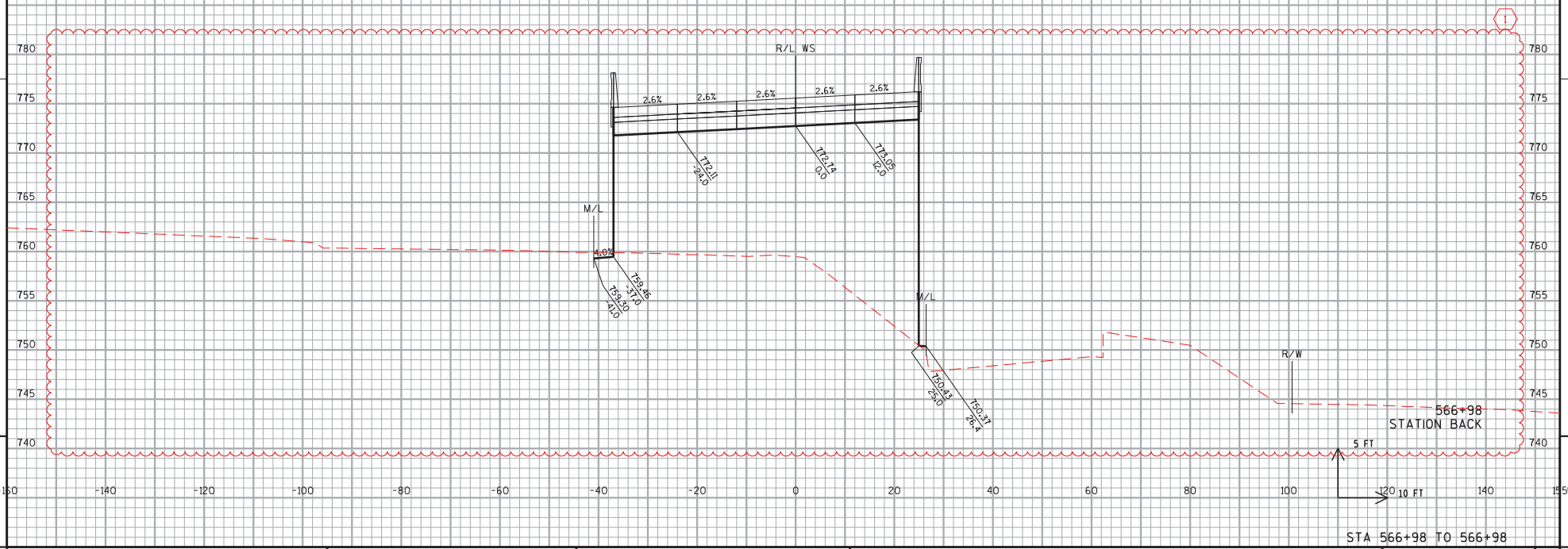

9 9

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP WS | SHEET 5479 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090302_xs_WS.dgn PLOT DATE : 11-AUG-2015 12:43 PLOT BY : mscsxp PLOT NAME : 090302_xs_WS21 PLOT SCALE : 20:1

ALL WORK STAGE 2

Addendum No. 01
ID 1060-33-81
Revised Sheet 5480
August 17, 2015




9 9

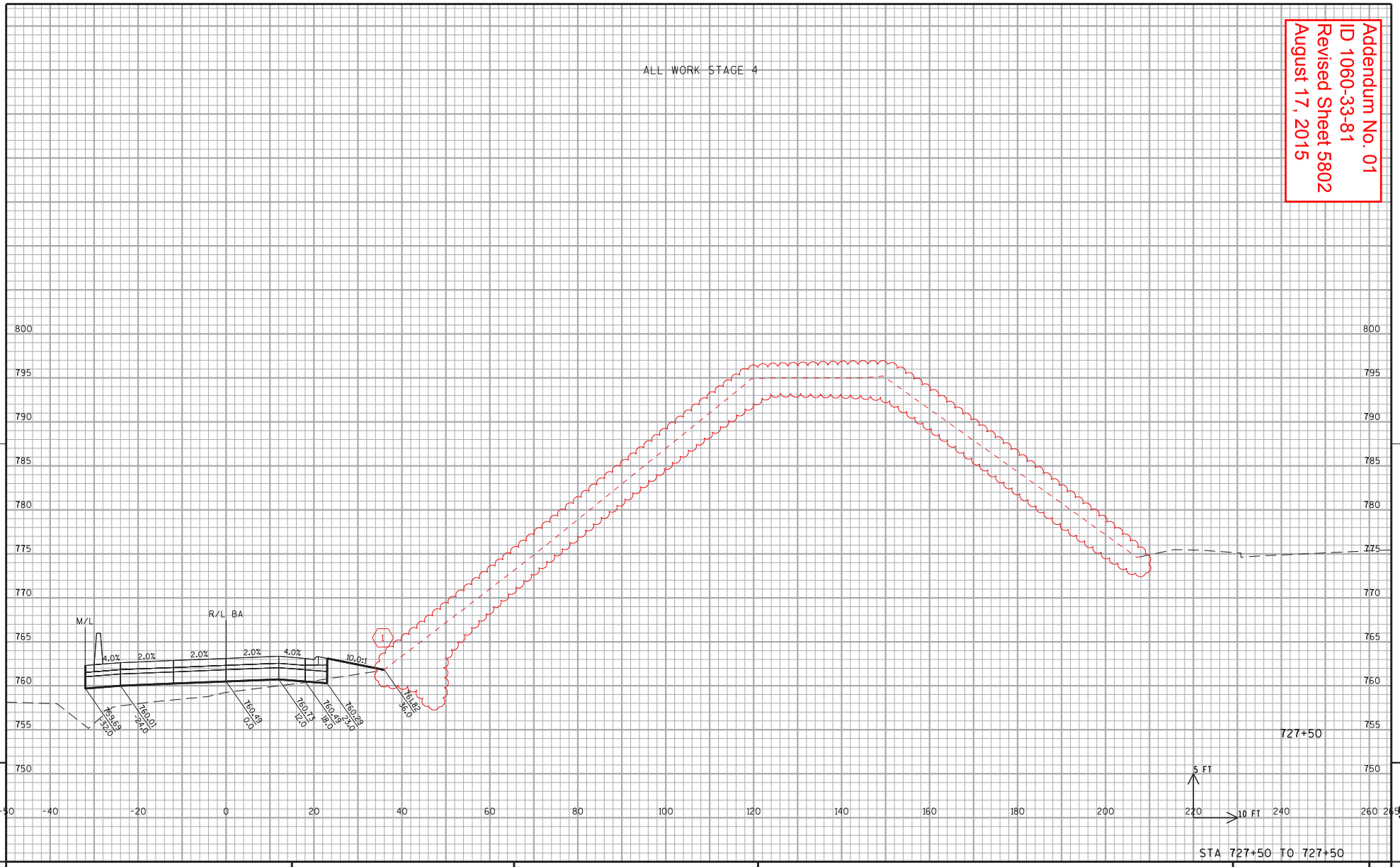
STA 566+98 TO 566+98

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP WS | SHEET 5480 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090302_xs_WS.dgn PLOT DATE : 11-AUG-2015 12:43 PLOT BY : mscsxp PLOT NAME : 090302_xs_WS22 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5802
August 17, 2015

ALL WORK STAGE 4




STA 727+50 TO 727+50

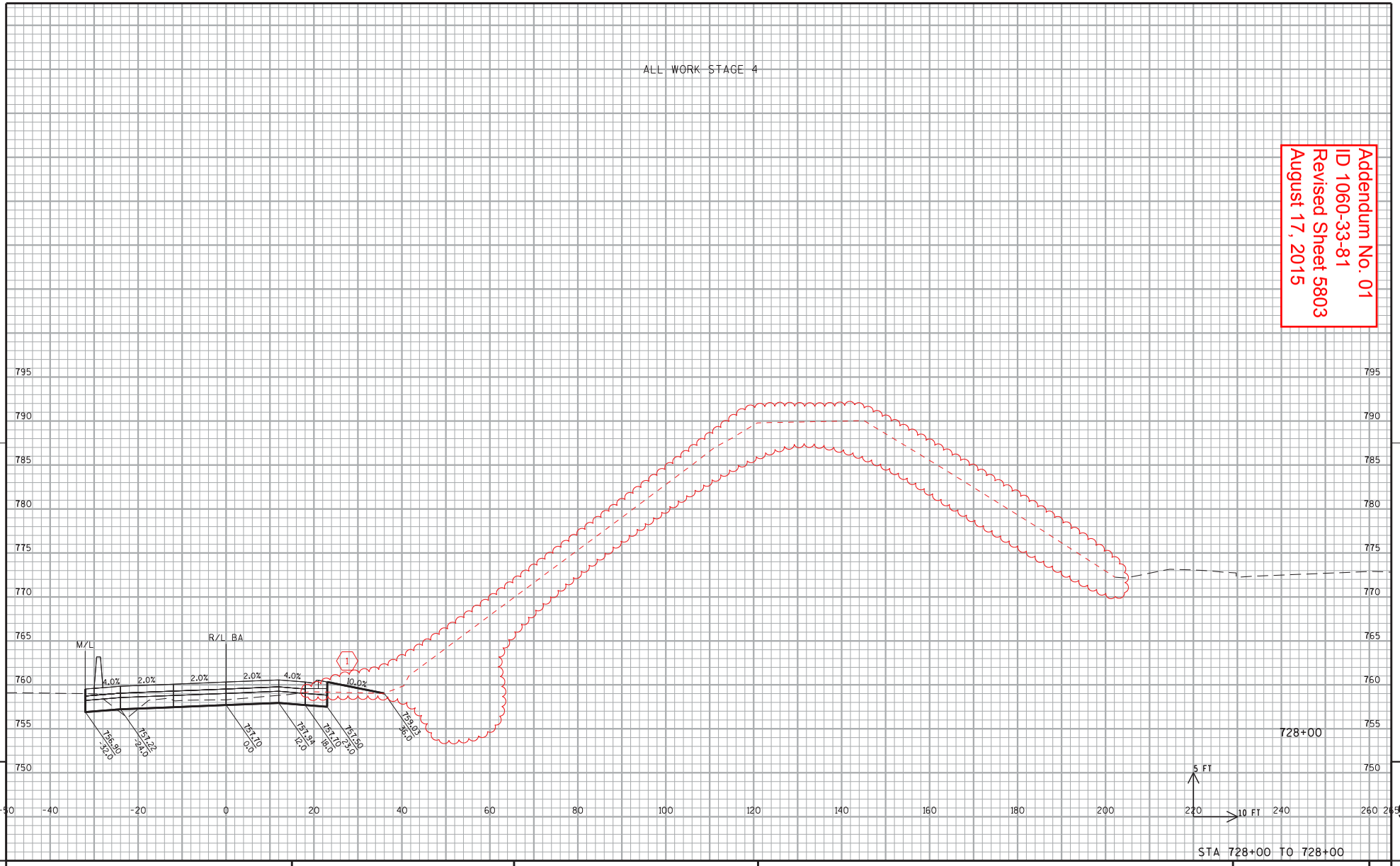
| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP BA | SHEET 5802 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090410_xs_BA.dgn PLOT DATE : 11-AUG-2015 11:24 PLOT BY : mscgz1 PLOT NAME : 090410_xs_BA5 PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

ALL WORK STAGE 4

Addendum No. 01
ID 1060-33-81
Revised Sheet 5803
August 17, 2015




9 9

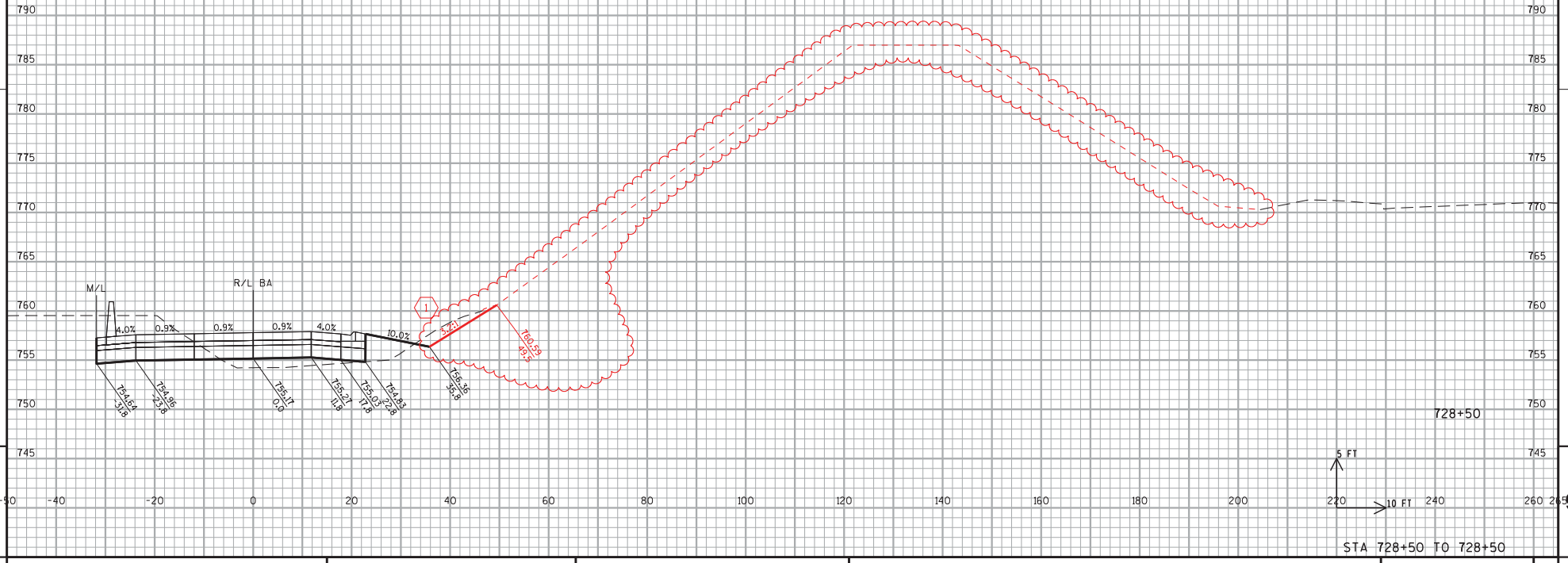
STA 728+00 TO 728+00

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP BA | SHEET 5803 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090410_xs_BA.dgn PLOT DATE : 11-AUG-2015 11:24 PLOT BY : mscgz1 PLOT NAME : 090410_xs_BA6 PLOT SCALE : 20:1

ALL WORK STAGE 4

Addendum No. 01
ID 1060-33-81
Revised Sheet 5804
August 17, 2015



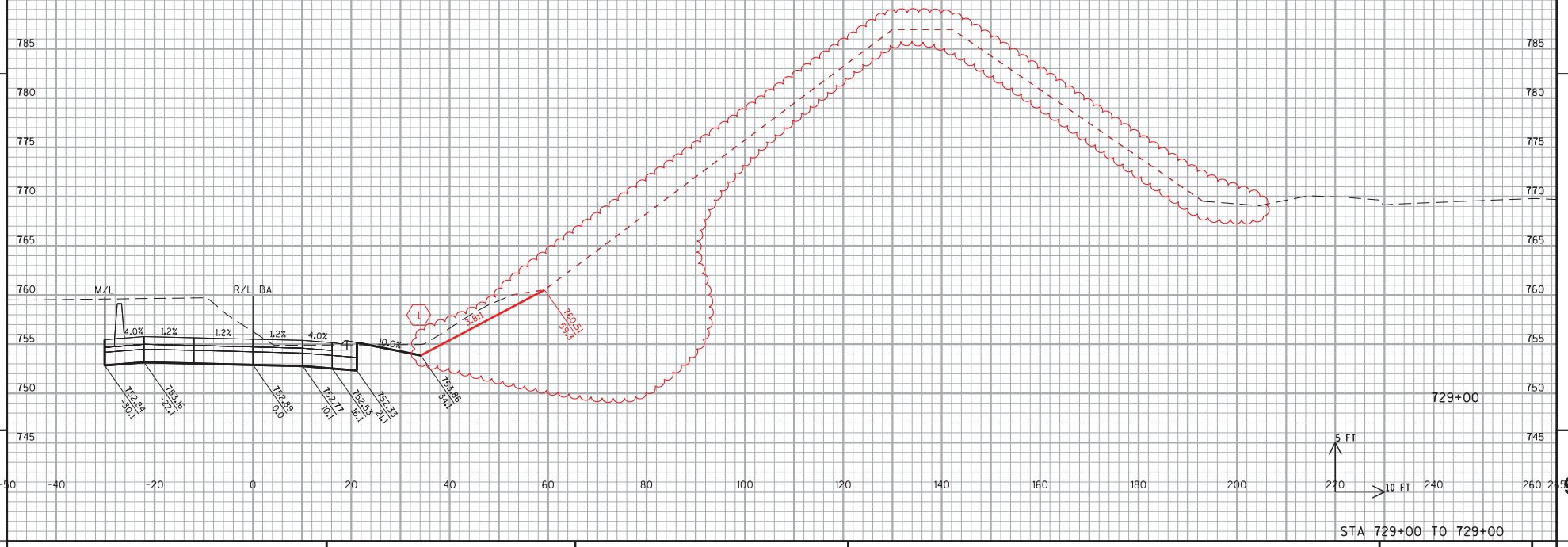

STA 728+50 TO 728+50

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP BA | SHEET 5804 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090410_xs_BA.dgn PLOT DATE : 11-AUG-2015 11:24 PLOT BY : mscgz1 PLOT NAME : 090410_xs_BA7 PLOT SCALE : 20:1

ALL WORK STAGE 4

Addendum No. 01
ID 1060-33-81
Revised Sheet 5805
August 17, 2015




STA 729+00 TO 729+00

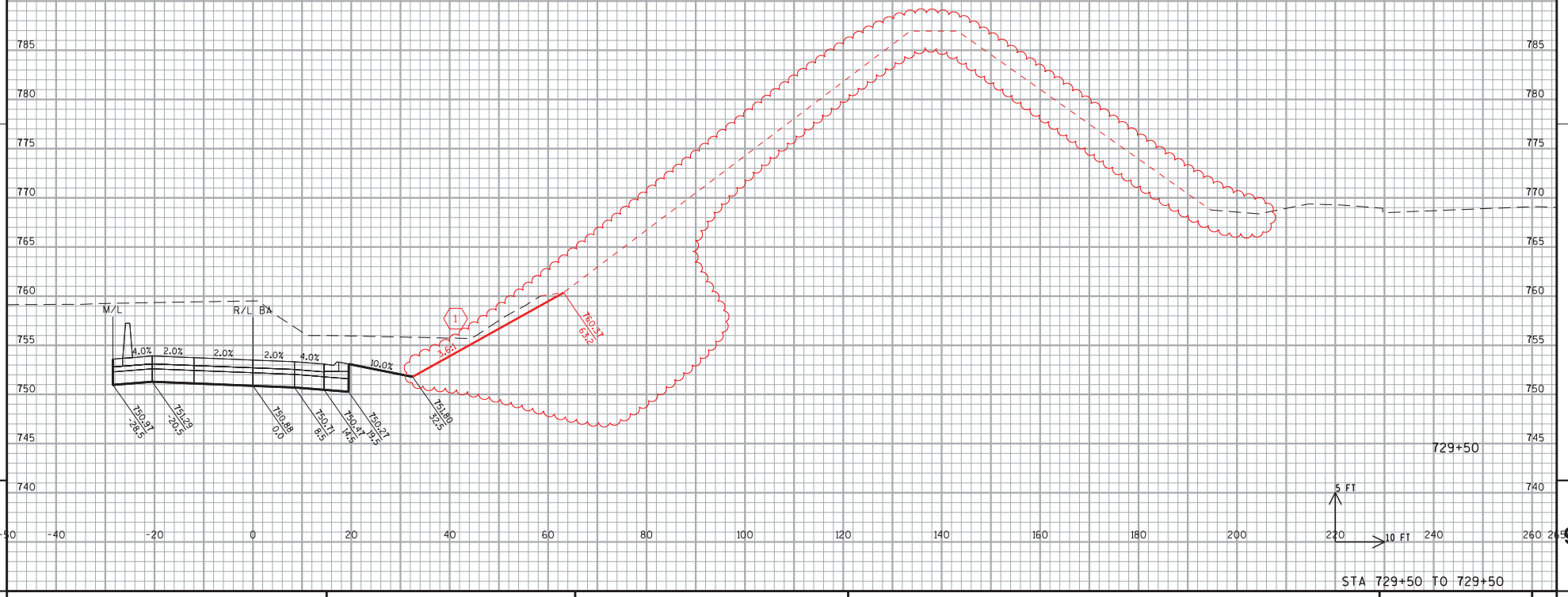
| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP BA | SHEET 5805 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090410_xs_BA.dgn PLOT DATE : 11-AUG-2015 11:24 PLOT BY : mscgz1 PLOT NAME : 090410_xs_BA8 PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

ALL WORK STAGE 4

Addendum No. 01
ID 1060-33-81
Revised Sheet 5806
August 17, 2015




STA 729+50 TO 729+50

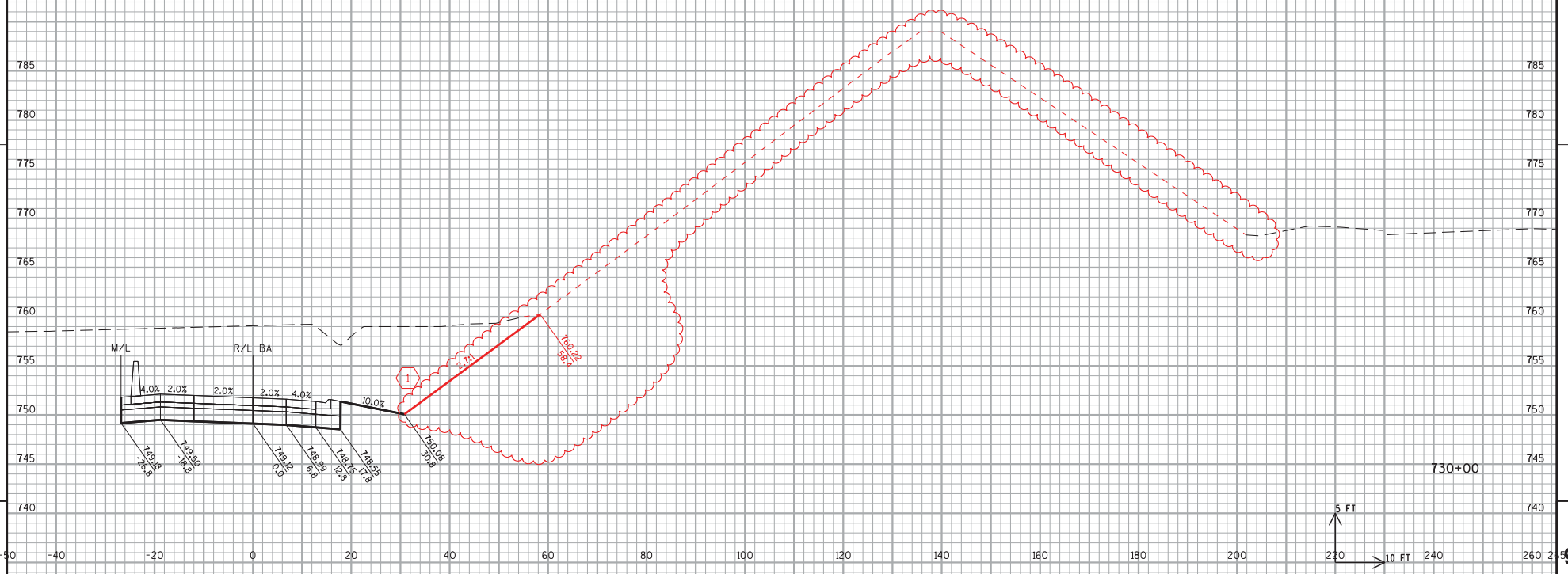
| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP BA | SHEET 5806 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090410_xs_BA.dgn PLOT DATE : 11-AUG-2015 11:24 PLOT BY : mscgzl PLOT NAME : 090410_xs_BA9 PLOT SCALE : 20:1

ALL WORK STAGE 4

Addendum No. 01
ID 1060-33-81
Revised Sheet 5807
August 17, 2015




STA 730+00 TO 730+00

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP BA | SHEET 5807 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090410_xs_BA.dgn PLOT DATE : 11-AUG-2015 11:24 PLOT BY : mscgz1 PLOT NAME : 090410_xs_BA10 PLOT SCALE : 20:1

ALL WORK STAGE 4

Addendum No. 01
ID 1060-33-81
Revised Sheet 5808
August 17, 2015




9 9

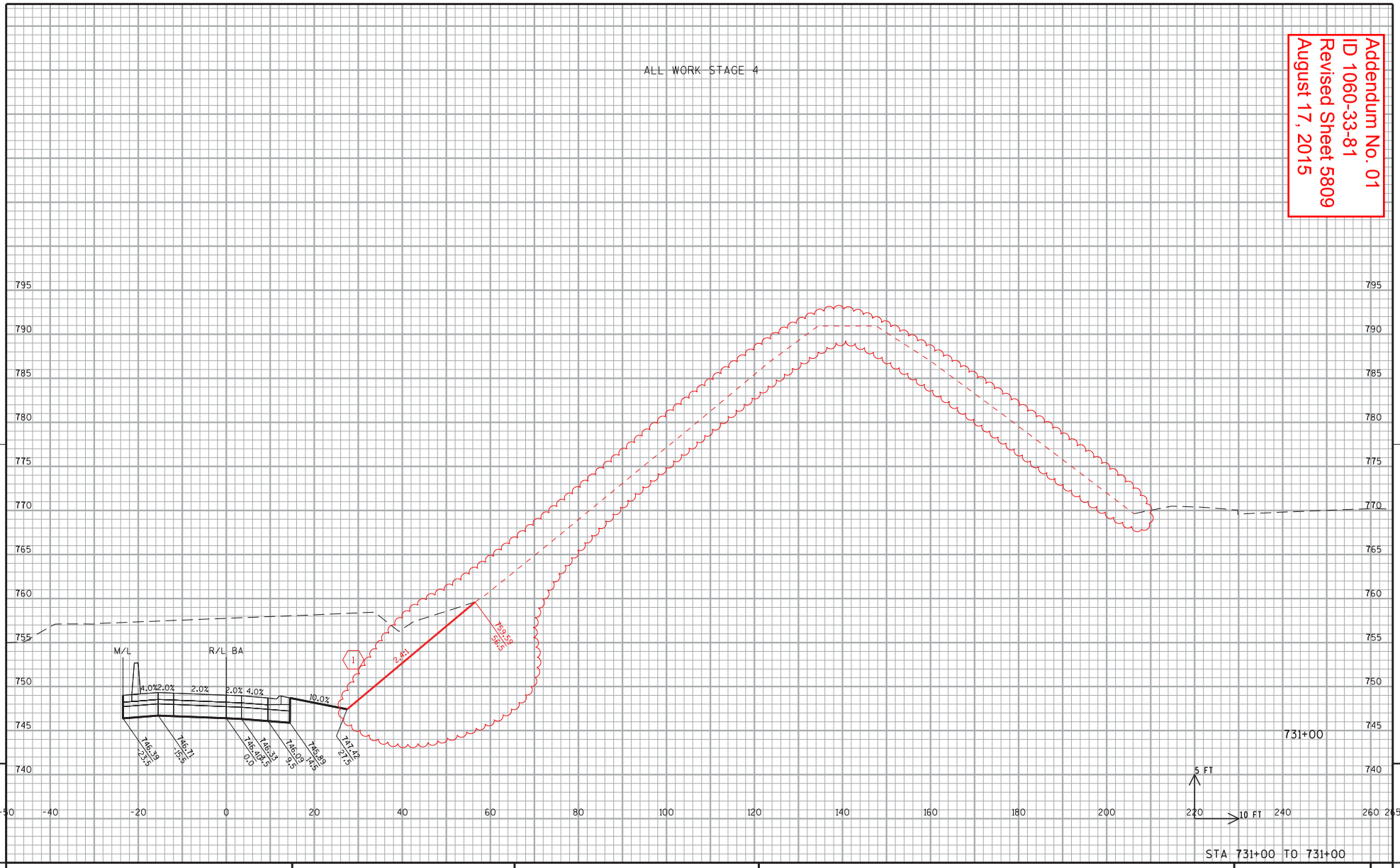
STA 730+50 TO 730+50

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP BA | SHEET 5808 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090410_xs_BA.dgn PLOT DATE : 11-AUG-2015 11:24 PLOT BY : mscgz1 PLOT NAME : 090410_xs_BA11 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5809
August 17, 2015

ALL WORK STAGE 4



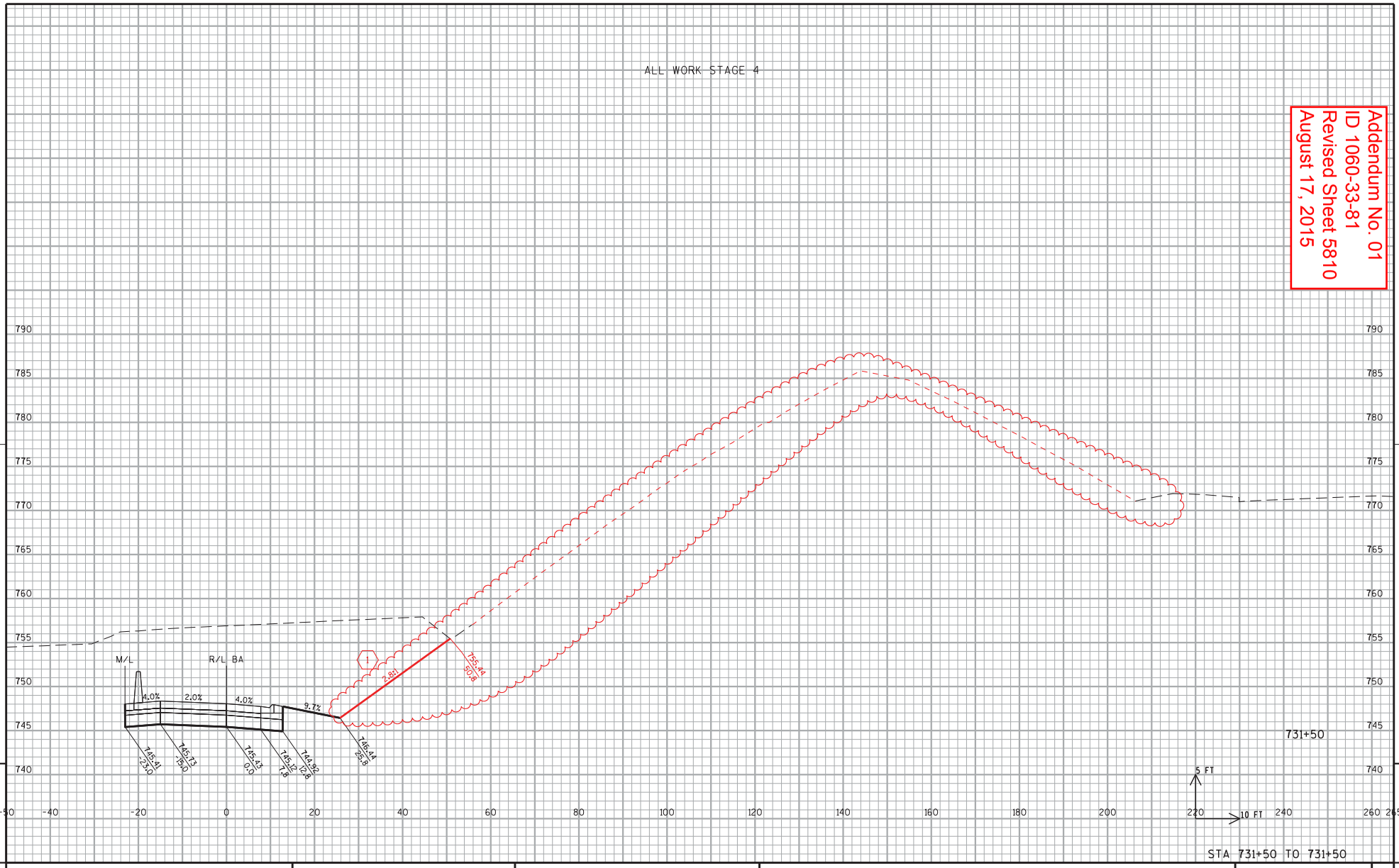

STA 731+00 TO 731+00

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP BA | SHEET 5809 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090410_xs_BA.dgn
PLOT DATE : 11-AUG-2015 11:24
PLOT BY : mscgz1
PLOT NAME : 090410_xs_BA12
PLOT SCALE : 20:1

ALL WORK STAGE 4

Addendum No. 01
ID 1060-33-81
Revised Sheet 5810
August 17, 2015




9

9

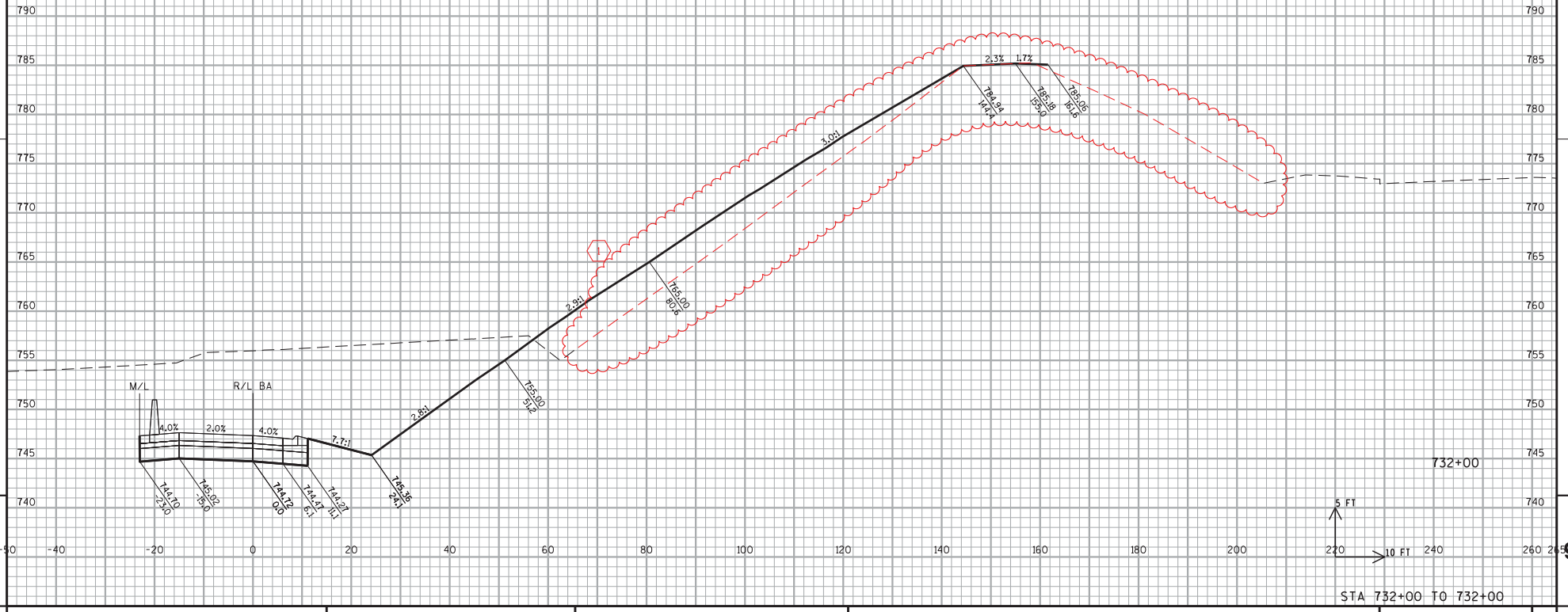
STA 731+50 TO 731+50

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP BA | SHEET 5810 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090410_xs_BA.dgn PLOT DATE : 11-AUG-2015 11:24 PLOT BY : mscgz1 PLOT NAME : 090410_xs_BA13 PLOT SCALE : 20:1

ALL WORK STAGE 4

Addendum No. 01
ID 1060-33-81
Revised Sheet 5811
August 17, 2015




STA 732+00 TO 732+00

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP BA | SHEET 5811 | E |
|---|---|---|---|---|---|

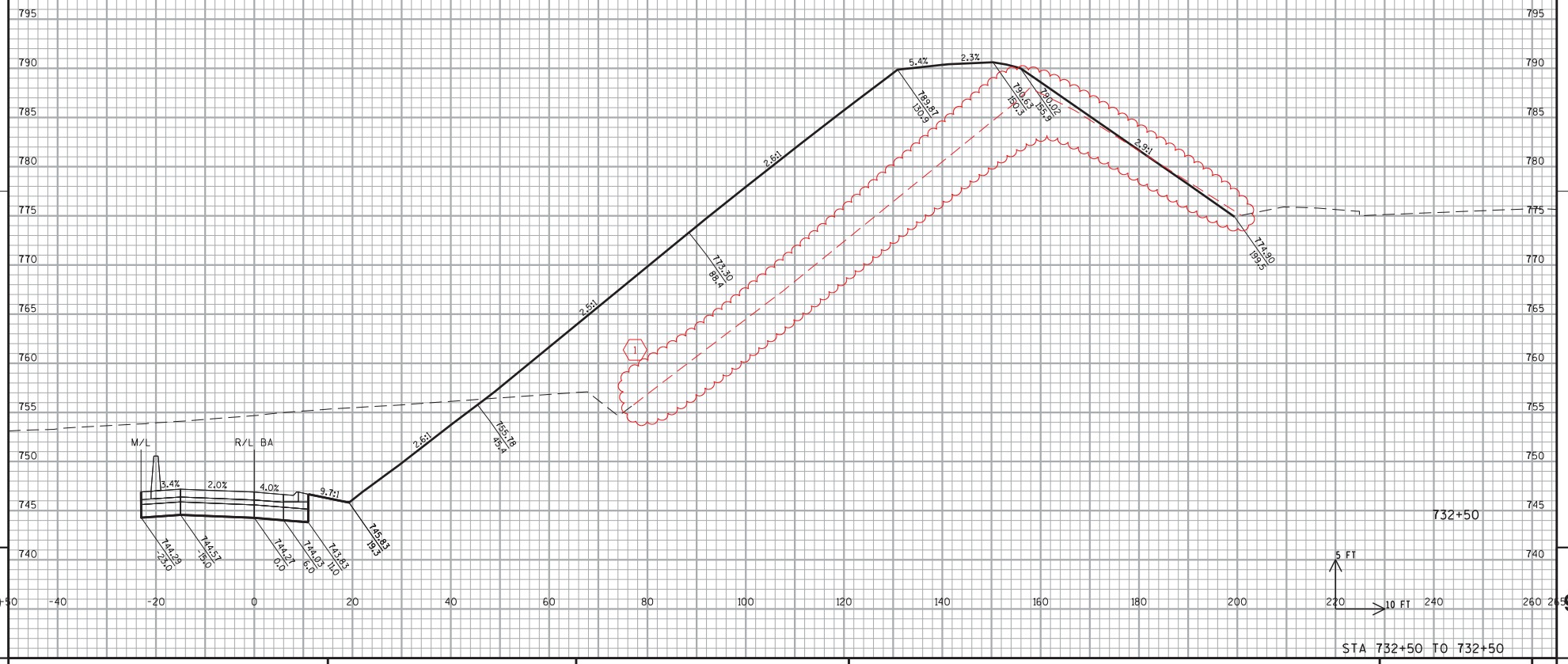
FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090410_xs_BA.dgn PLOT DATE : 11-AUG-2015 11:24 PLOT BY : mscgz1 PLOT NAME : 090410_xs_BA14 PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

9 9

Addendum No. 01
ID 1060-33-81
Revised Sheet 5812
August 17, 2015

ALL WORK STAGE 4




STA 732+50 TO 732+50

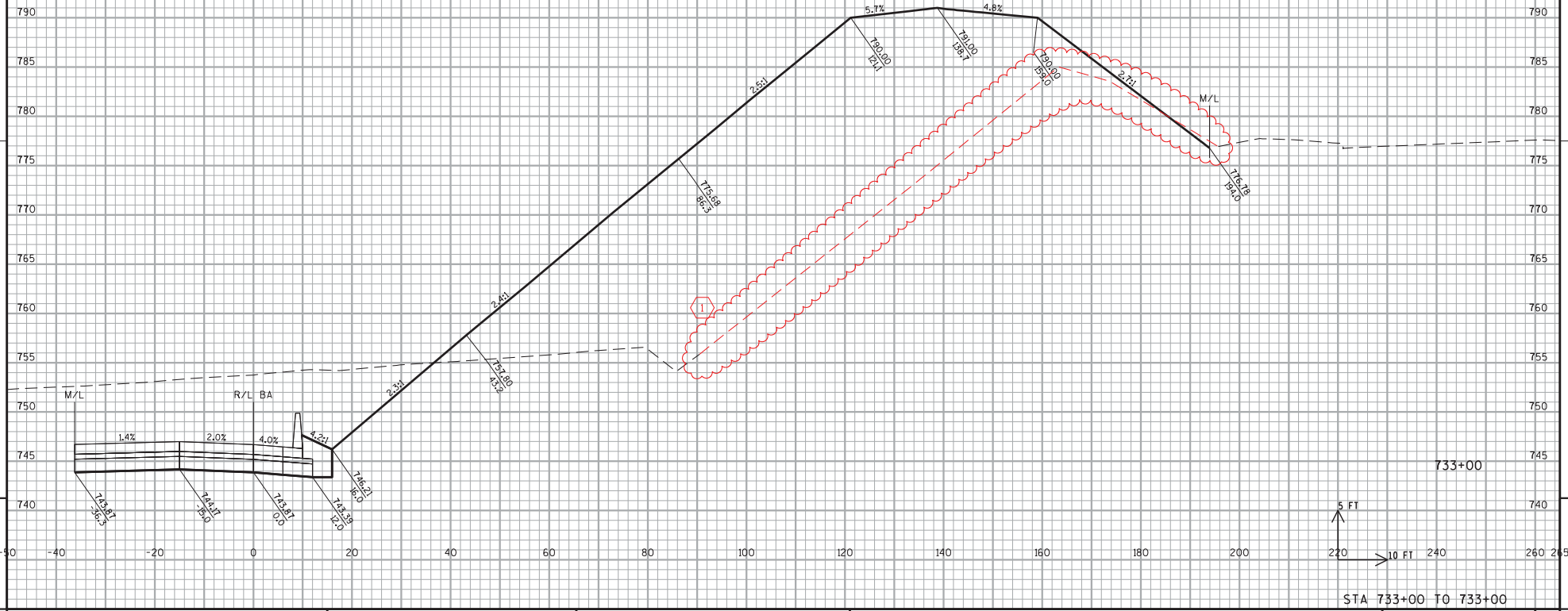
| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP BA | SHEET 5812 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090410_xs_BA.dgn PLOT DATE : 11-AUG-2015 11:24 PLOT BY : mscgzl PLOT NAME : 090410_xs_BA15 PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

Addendum No. 01
ID 1060-33-81
Revised Sheet 5813
August 17, 2015

ALL WORK STAGE 4



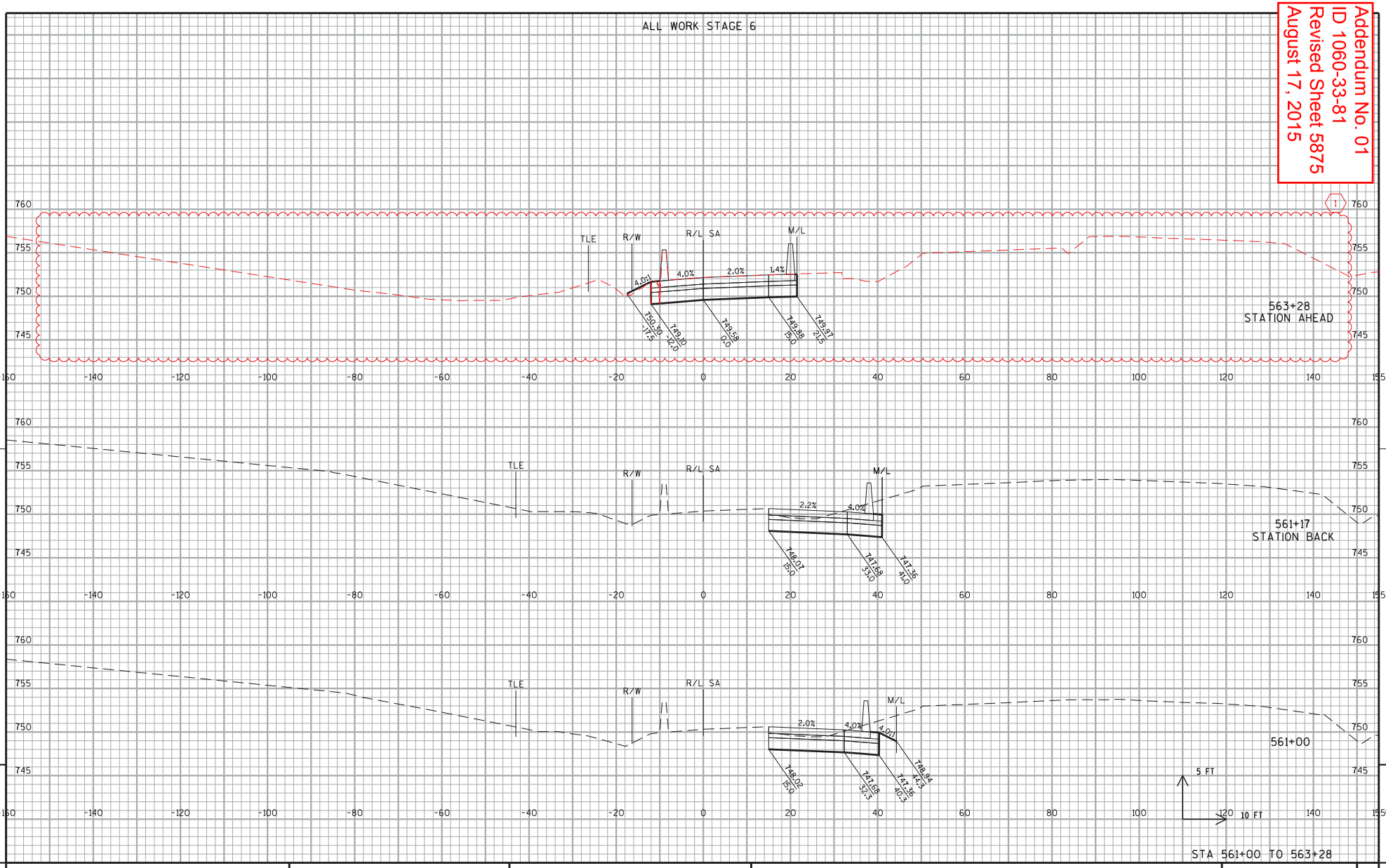

9 9

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP BA | SHEET 5813 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090410_xs_BA.dgn PLOT DATE : 11-AUG-2015 11:24 PLOT BY : mscgz1 PLOT NAME : 090410_xs_BA16 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5875
August 17, 2015

ALL WORK STAGE 6



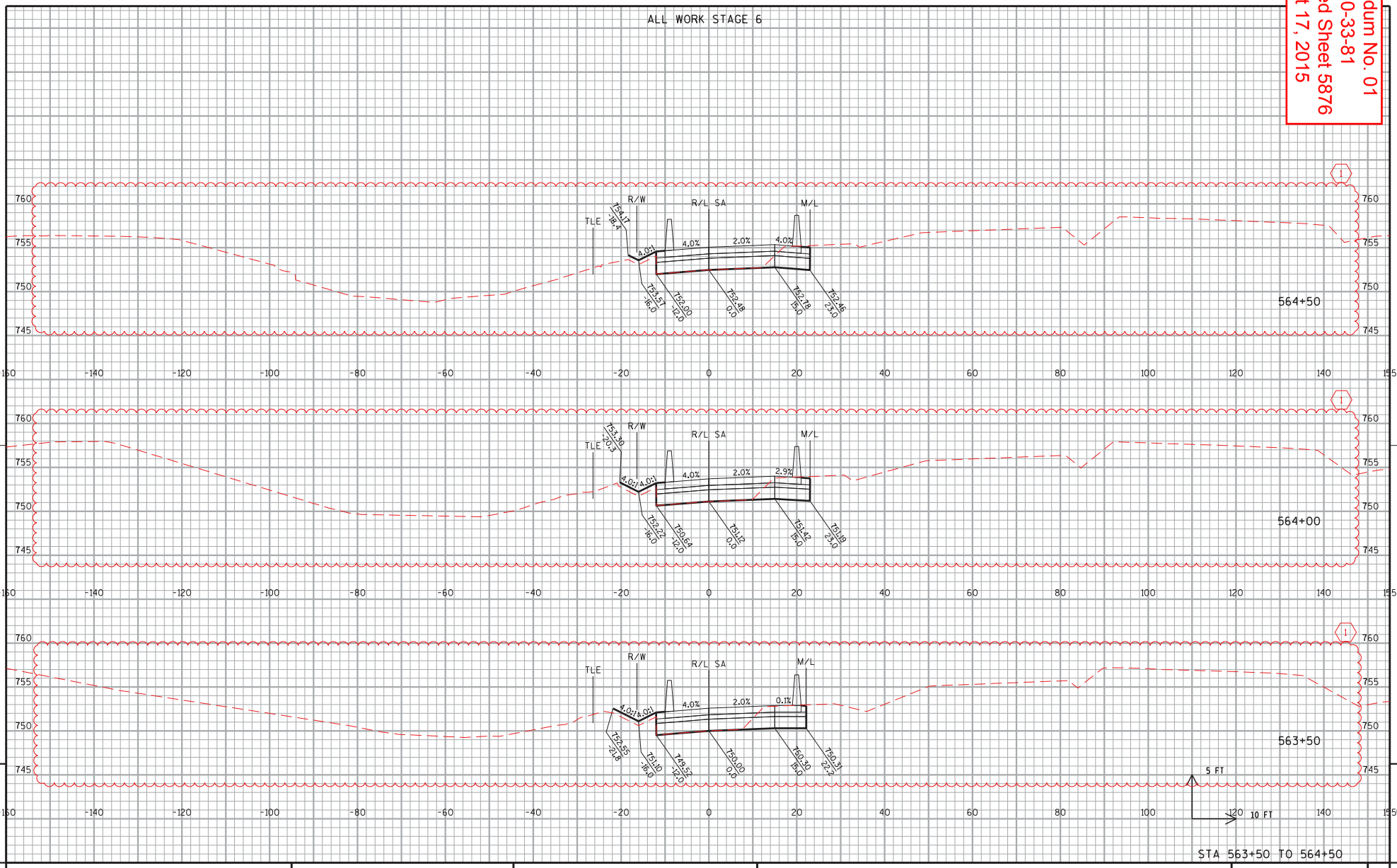

9 9

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SA | SHEET 5875 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090416_xs_SA.dgn PLOT DATE : 11-AUG-2015 11:24 PLOT BY : mscsxp PLOT NAME : 090416_xs_SA1 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5876
August 17, 2015

ALL WORK STAGE 6



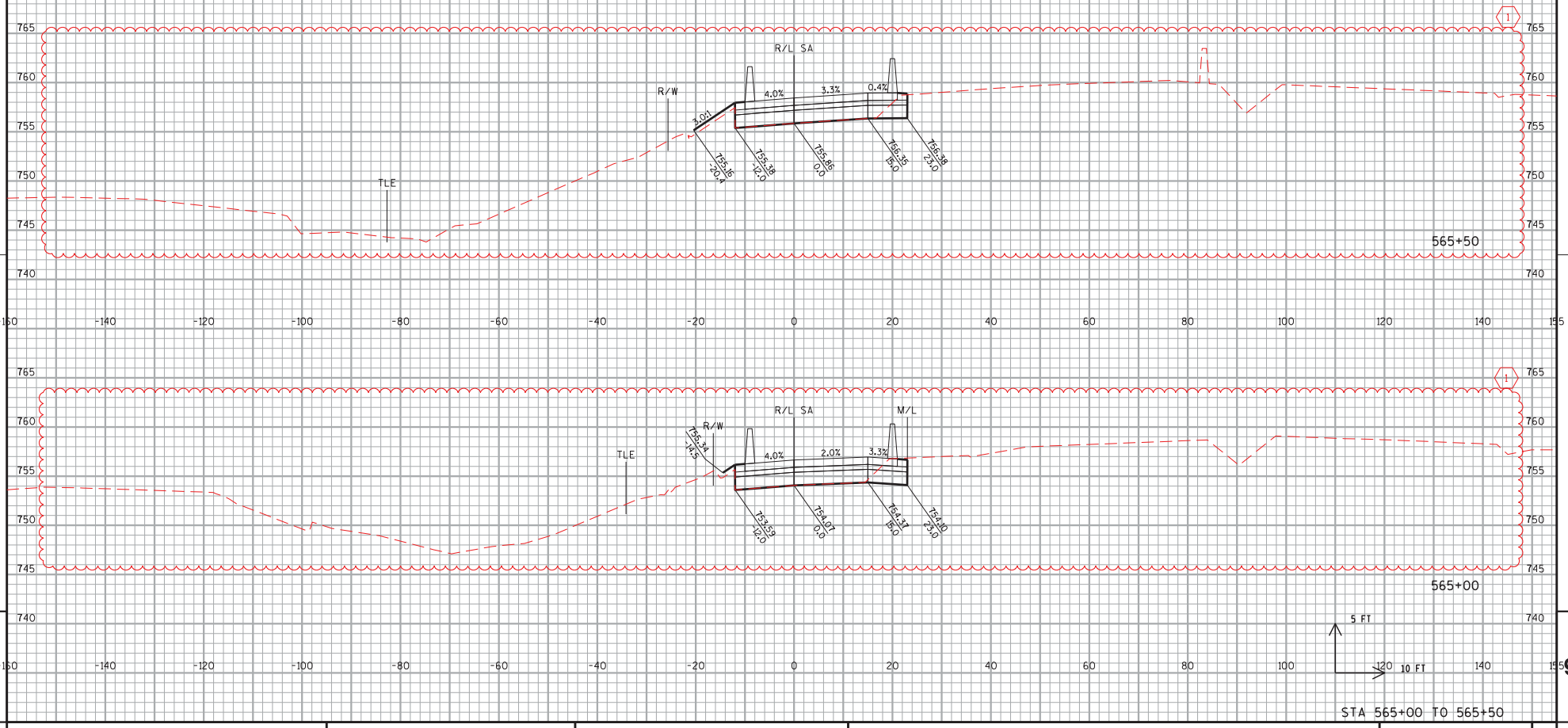

9 9

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SA | SHEET 5876 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090416_xs_SA.dgn PLOT DATE : 11-AUG-2015 11:24 PLOT BY : mscsxp PLOT NAME : 090416_xs_SA2 PLOT SCALE : 20:1

ALL WORK STAGE 6

Addendum No. 01
ID 1060-33-81
Revised Sheet 5877
August 17, 2015

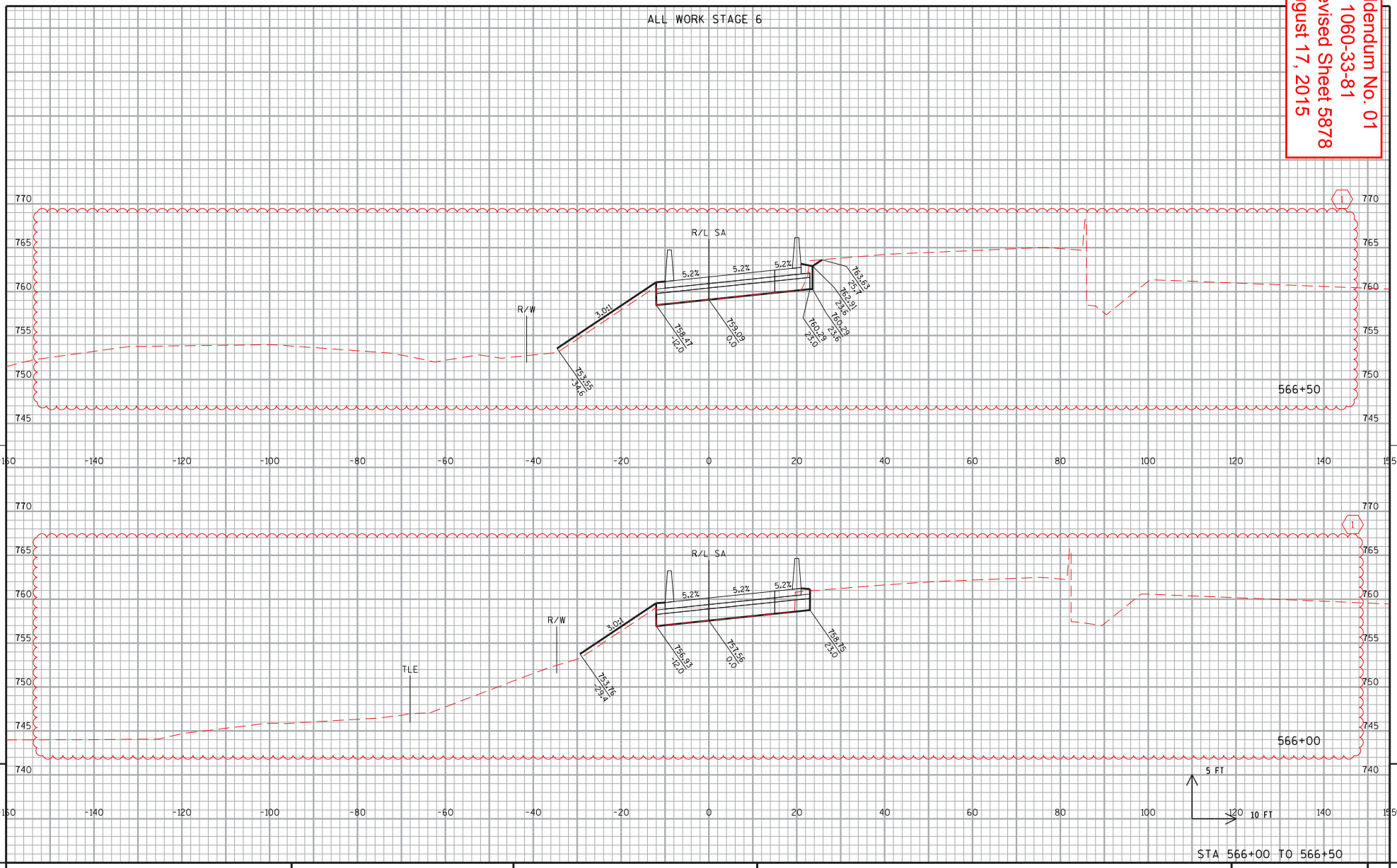



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SA | SHEET 5877 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090416_xs_SA.dgn PLOT DATE : 11-AUG-2015 11:24 PLOT BY : mscsxp PLOT NAME : 090416_xs_SA3 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5878
August 17, 2015

ALL WORK STAGE 6



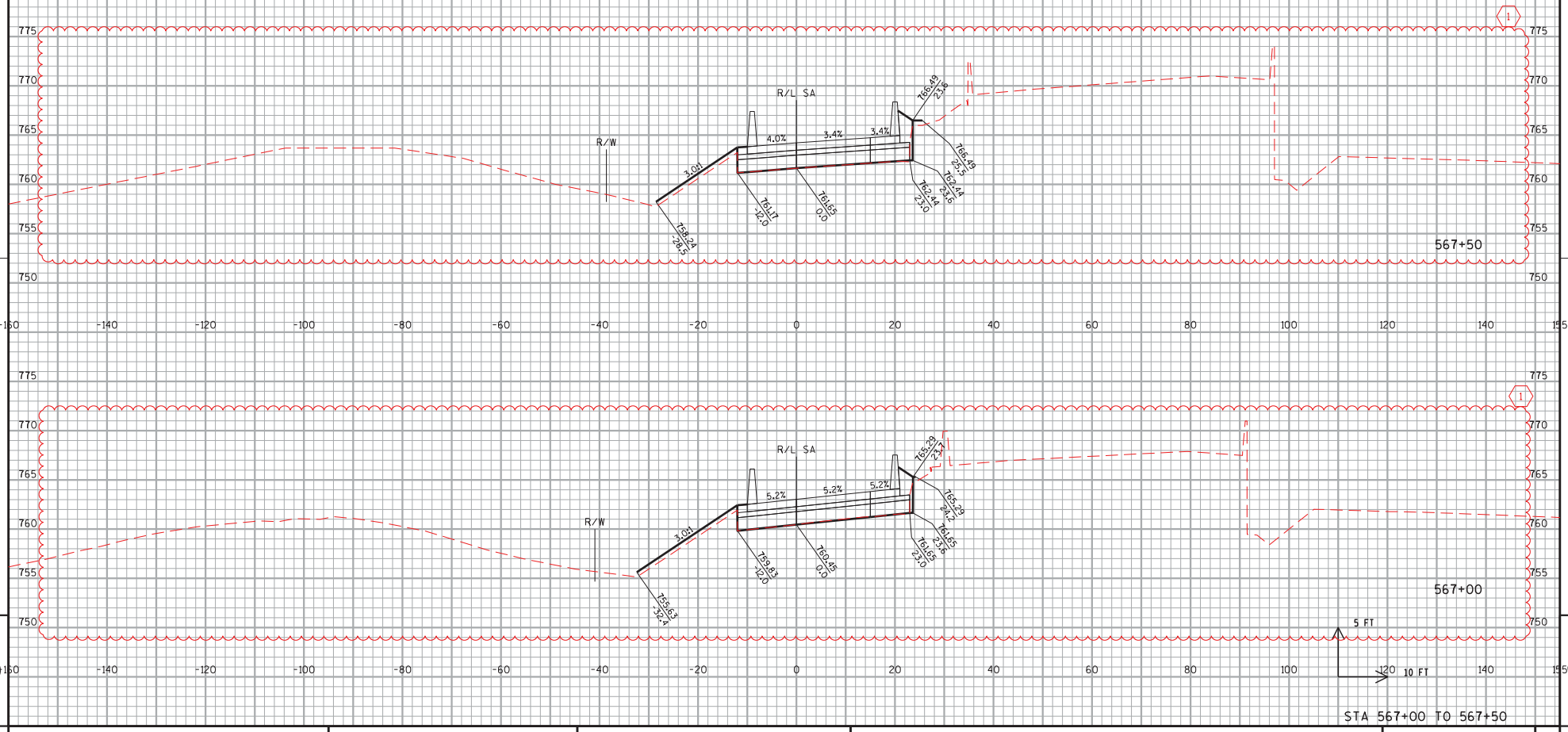

STA 566+00 TO 566+50

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SA | SHEET 5878 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090416_xs_SA.dgn PLOT DATE : 11-AUG-2015 11:24 PLOT BY : mscsxp PLOT NAME : 090416_xs_SA4 PLOT SCALE : 20:1

ALL WORK STAGE 6

Addendum No. 01
ID 1060-33-81
Revised Sheet 5879
August 17, 2015







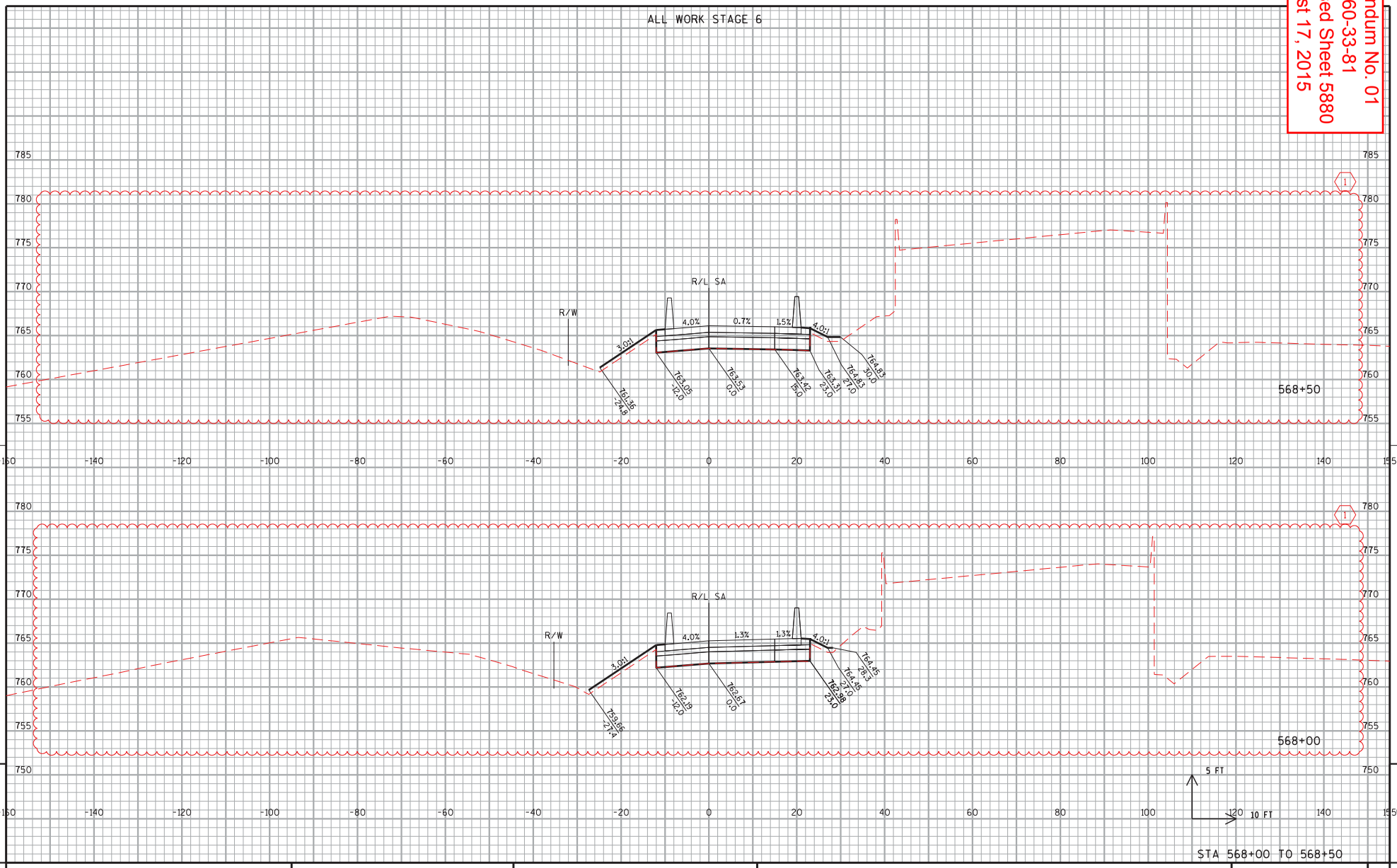
STA 567+00 TO 567+50

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SA | SHEET 5879 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090416_xs_SA.dgn
PLOT DATE : 11-AUG-2015 11:25
PLOT BY : mscsxp
PLOT NAME : 090416_xs_SA5
PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5880
August 17, 2015

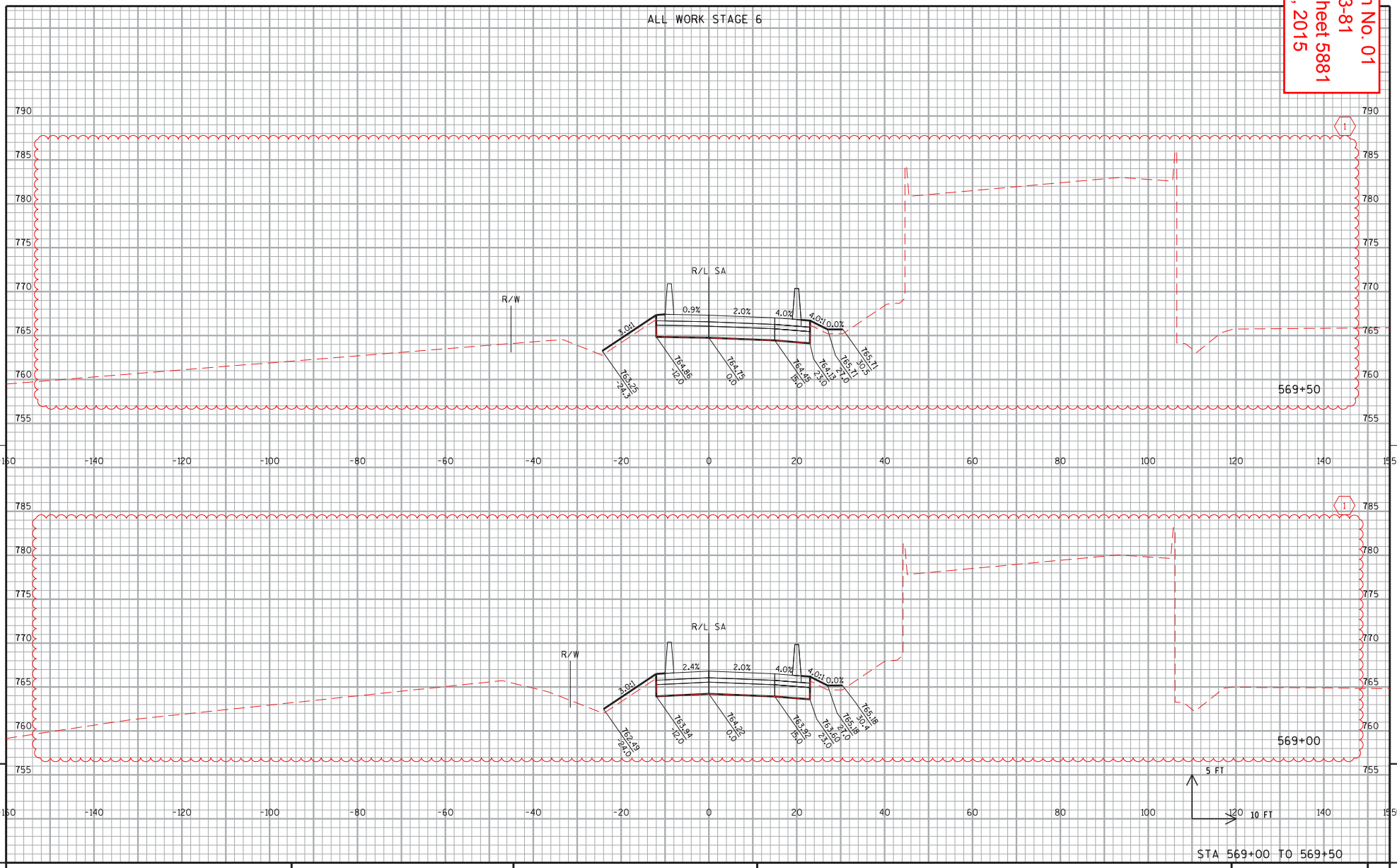
ALL WORK STAGE 6




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SA | SHEET 5880 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090416_xs_SA.dgn PLOT DATE : 11-AUG-2015 11:25 PLOT BY : mscsxp PLOT NAME : 090416_xs_SA6 PLOT SCALE : 20:1

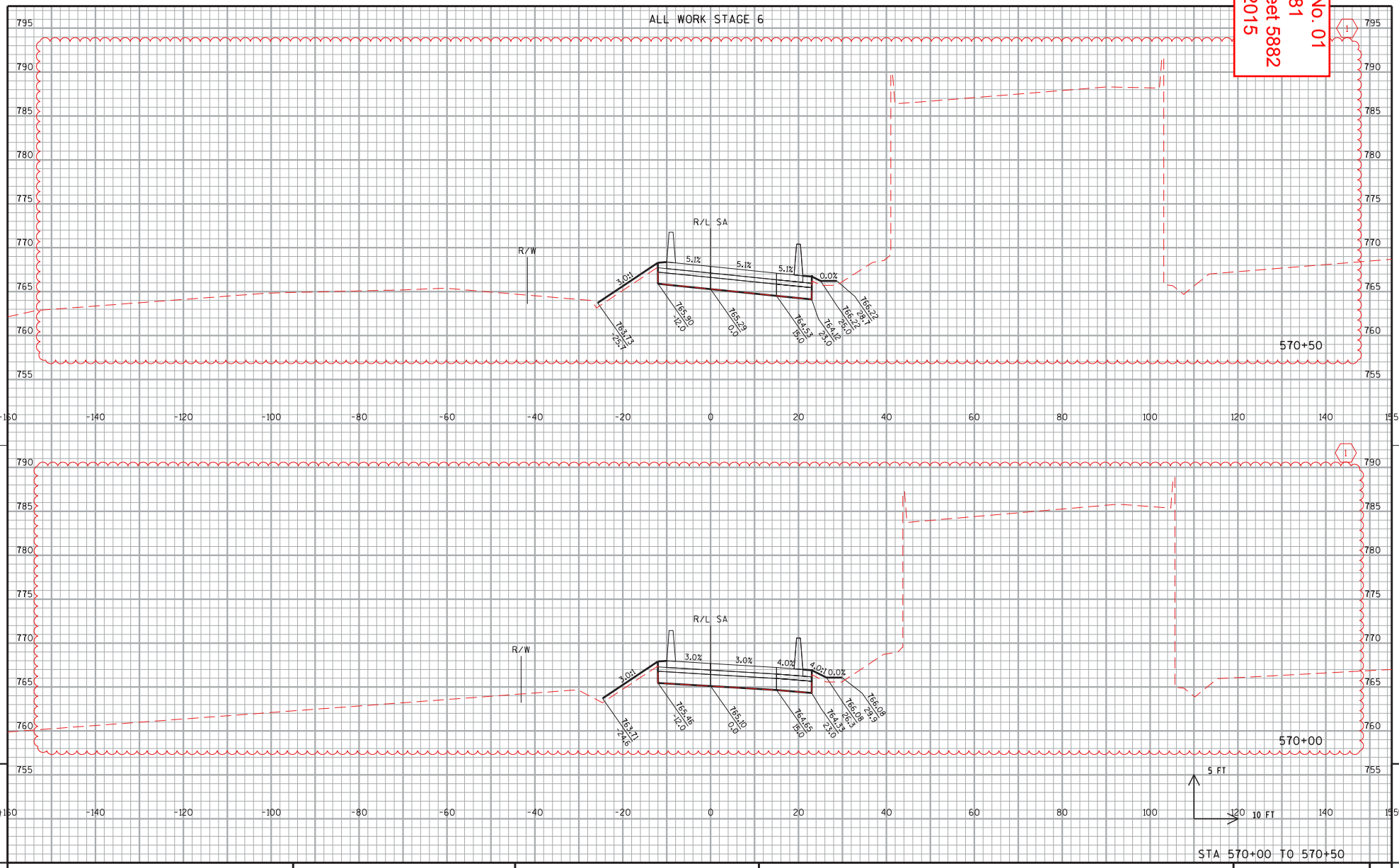
Addendum No. 01
ID 1060-33-81
Revised Sheet 5881
August 17, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SA | SHEET 5881 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090416_xs_SA.dgn
PLOT DATE : 11-AUG-2015 11:25
PLOT BY : mscsxp
PLOT NAME : 090416_xs_SA7
PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5882
August 17, 2015



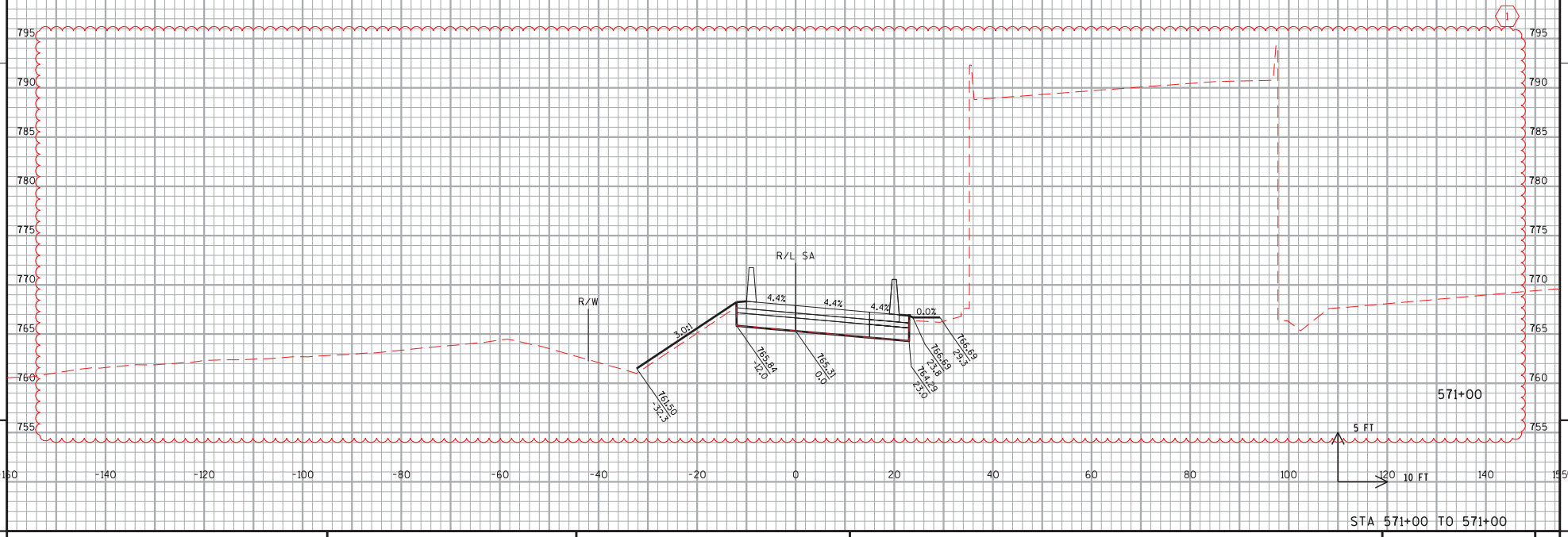

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SA | SHEET 5882 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090416_xs_SA.dgn PLOT DATE : 11-AUG-2015 11:25 PLOT BY : mscsxp PLOT NAME : 090416_xs_SA8 PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

ALL WORK STAGE 6

Addendum No. 01
ID 1060-33-81
Revised Sheet 5883
August 17, 2015

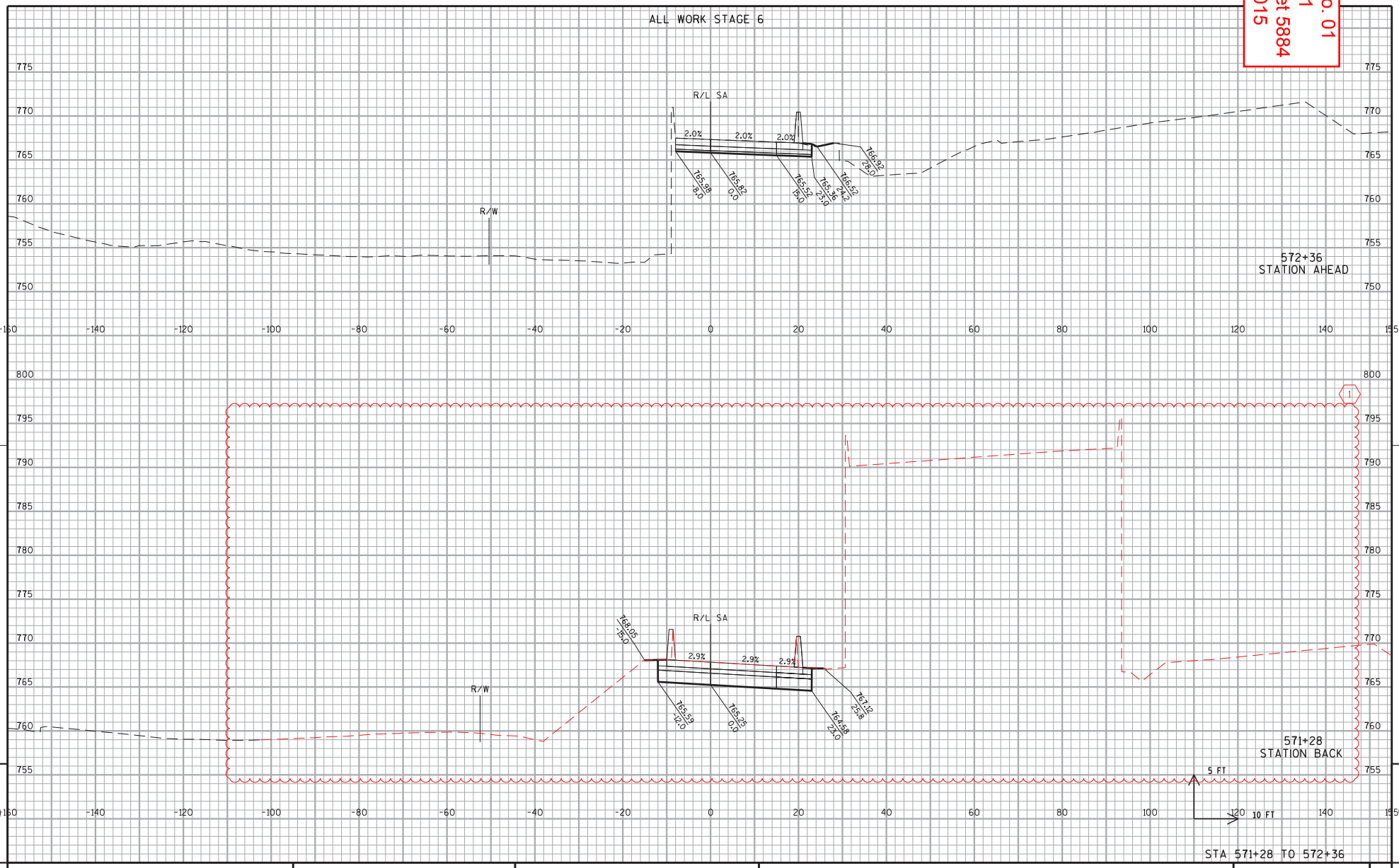



STA 571+00 TO 571+00

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SA | SHEET 5883 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090416_xs_SA.dgn PLOT DATE : 11-AUG-2015 11:25 PLOT BY : mscsxp PLOT NAME : 090416_xs_SA9 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5884
August 17, 2015




9 9

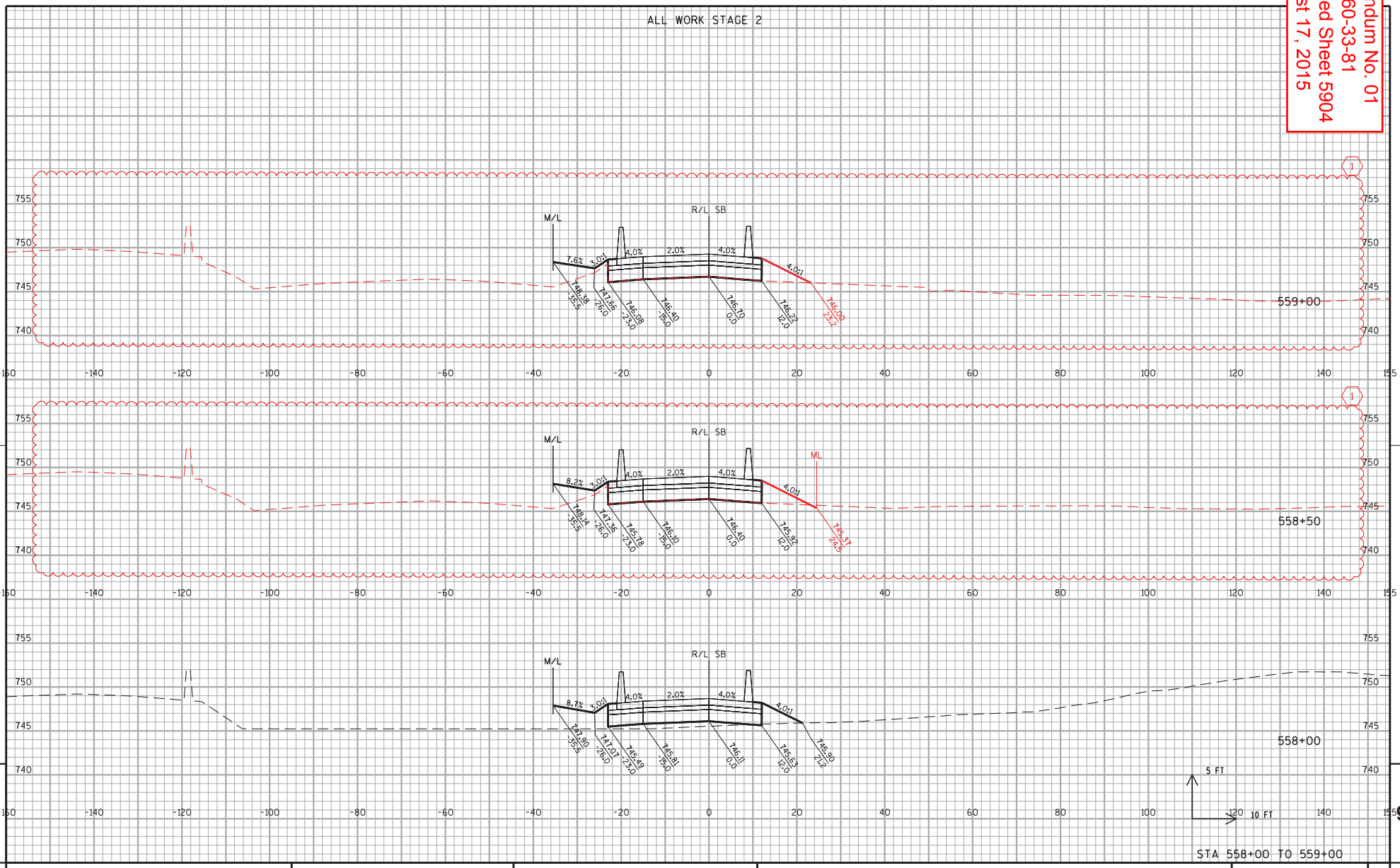
| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SA | SHEET 5884 | E |
|---|---|---|---|---|---|

STA 571+28 TO 572+36

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090416_xs_SA.dgn PLOT DATE : 11-AUG-2015 11:25 PLOT BY : mscsxp PLOT NAME : 090416_xs_SA10 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5904
August 17, 2015

ALL WORK STAGE 2



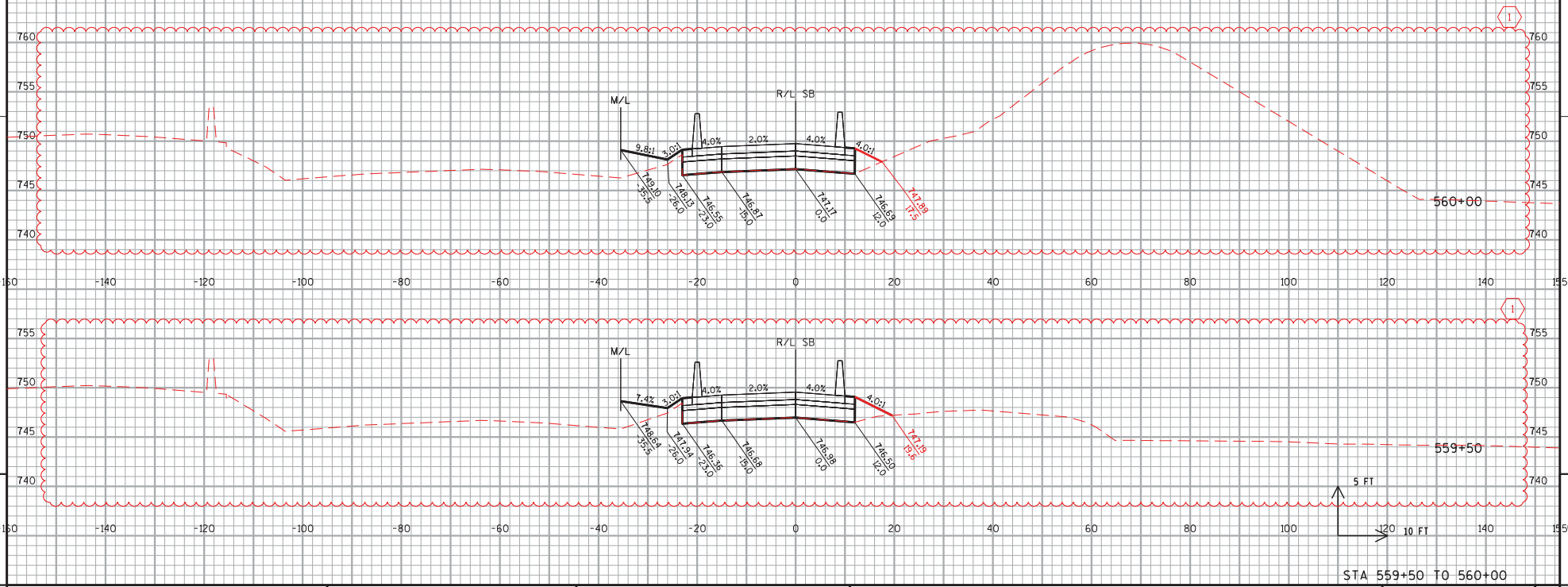

STA 558+00 TO 559+00

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SB | SHEET 5904 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090417_xs_SB.dgn PLOT DATE : 11-AUG-2015 11:03 PLOT BY : mscsxp PLOT NAME : 090417_xs_SB11 PLOT SCALE : 20:1

ALL WORK STAGE 2

Addendum No. 01
ID 1060-33-81
Revised Sheet 5905
August 17, 2015




STA 559+50 TO 560+00

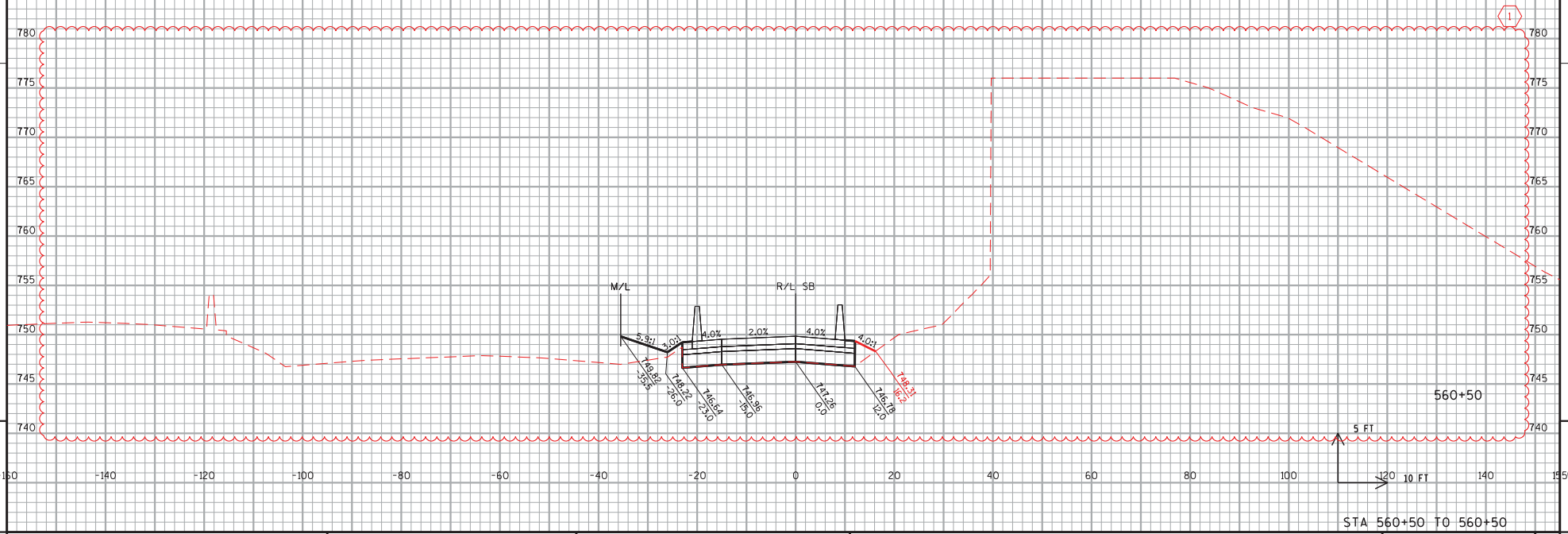
| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SB | SHEET 5905 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090417_xs_SB.dgn PLOT DATE : 11-AUG-2015 11:03 PLOT BY : mscsxp PLOT NAME : 090417_xs_SB12 PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

ALL WORK STAGE 2

Addendum No. 01
ID 1060-33-81
Revised Sheet 5906
August 17, 2015

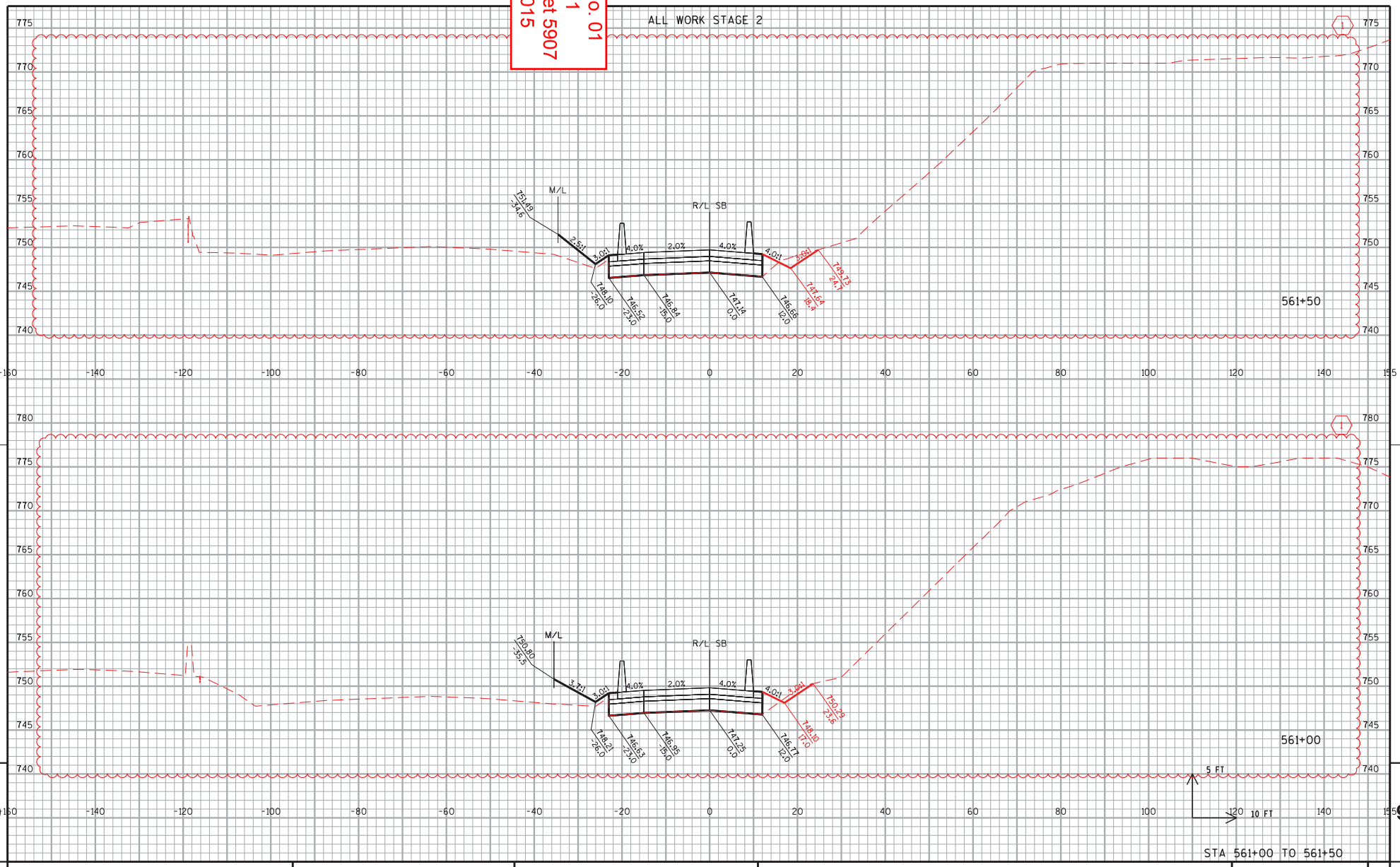



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SB | SHEET 5906 | E |
|---|---|---|---|---|---|

STA 560+50 TO 560+50

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090417_xs_SB.dgn PLOT DATE : 11-AUG-2015 11:03 PLOT BY : mscsxp PLOT NAME : 090417_xs_SB13 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5907
August 17, 2015



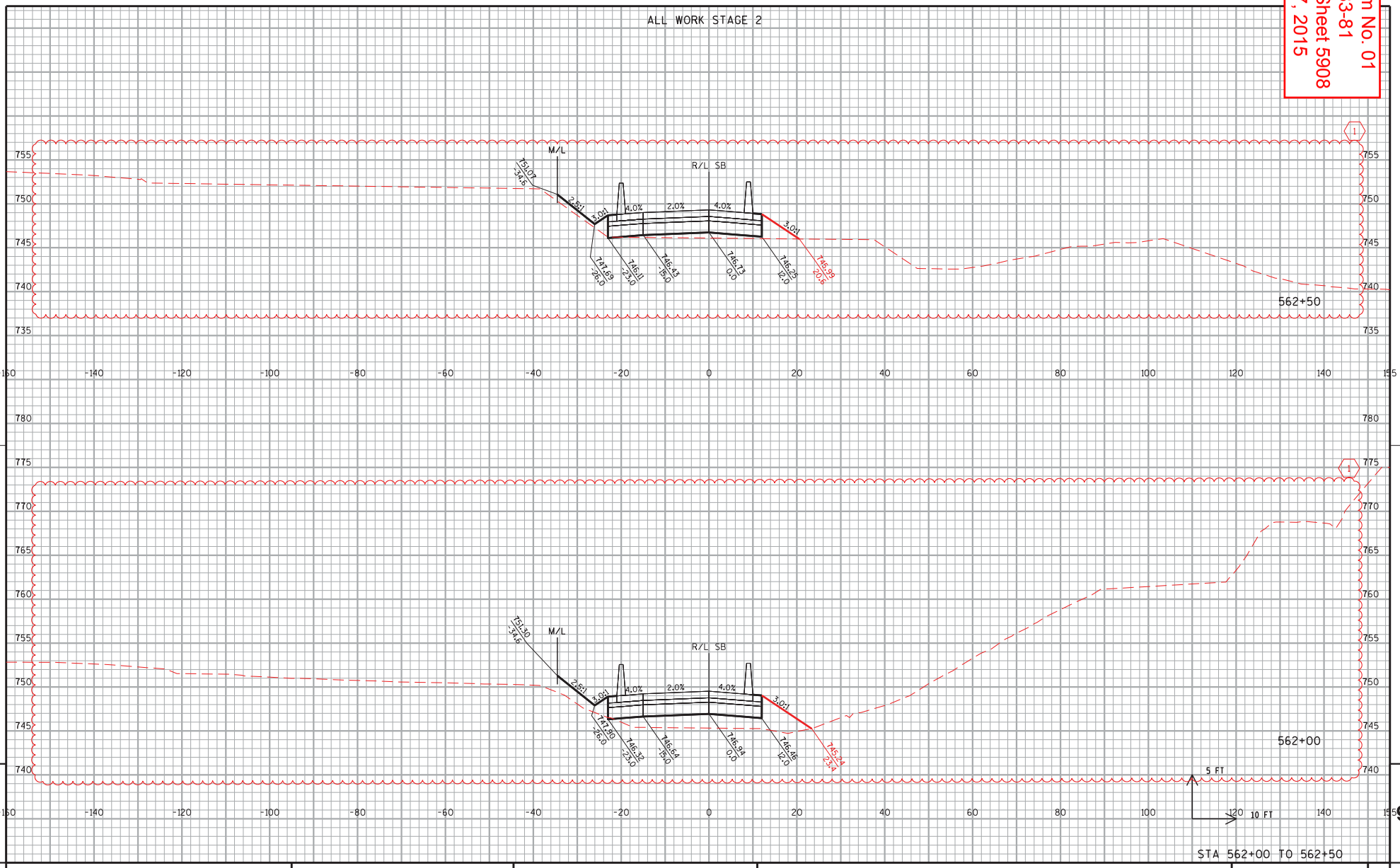

9 9

STA 561+00 TO 561+50

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SB | SHEET 5907 | E |
|---|---|---|---|---|---|


FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090417_xs_SB.dgn
PLOT DATE : 11-AUG-2015 11:03
PLOT BY : mscsxp
PLOT NAME : 090417_xs_SB14
PLOT SCALE : 20:1
WISDOT/CADDS SHEET 21

Addendum No. 01
ID 1060-33-81
Revised Sheet 5908
August 17, 2015

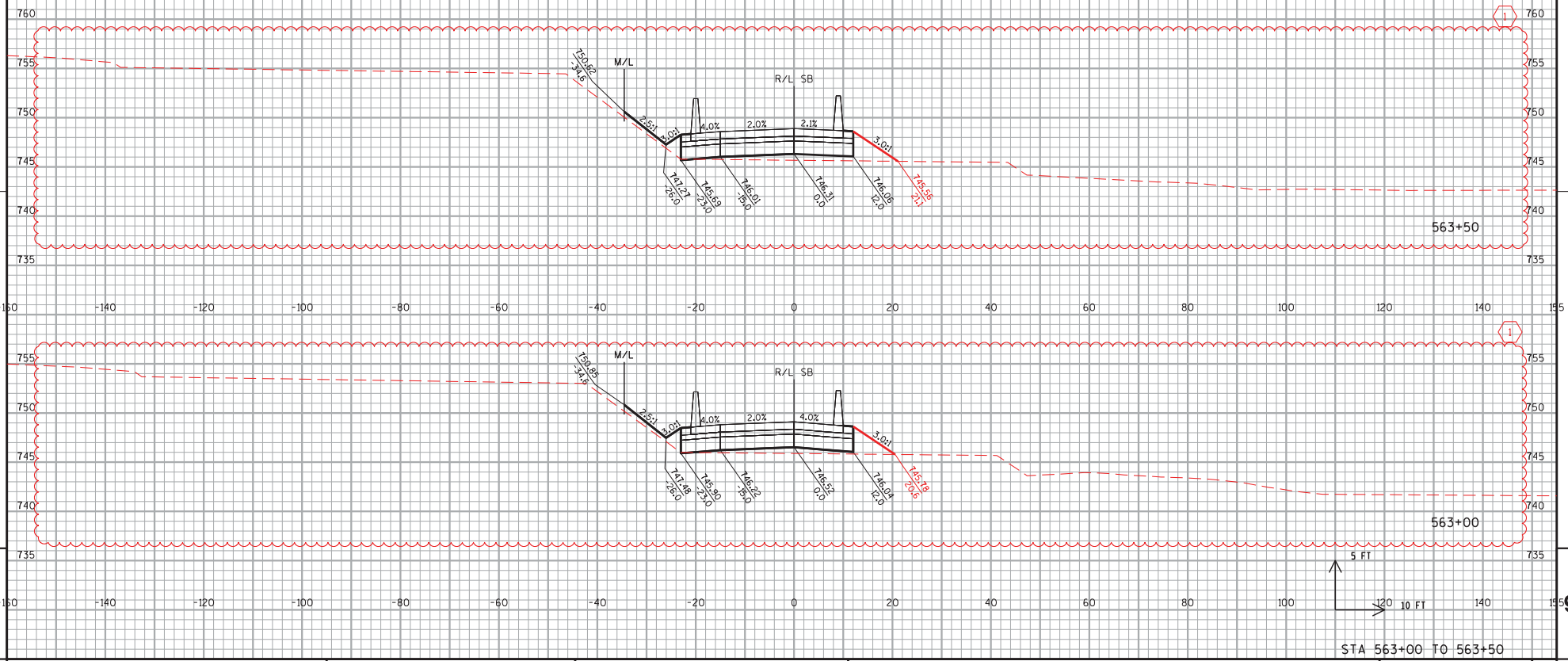



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SB | SHEET 5908 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090417_xs_SB.dgn PLOT DATE : 11-AUG-2015 11:03 PLOT BY : mscsxp PLOT NAME : 090417_xs_SB15 PLOT SCALE : 20:1

ALL WORK STAGE 2

Addendum No. 01
ID 1060-33-81
Revised Sheet 5909
August 17, 2015







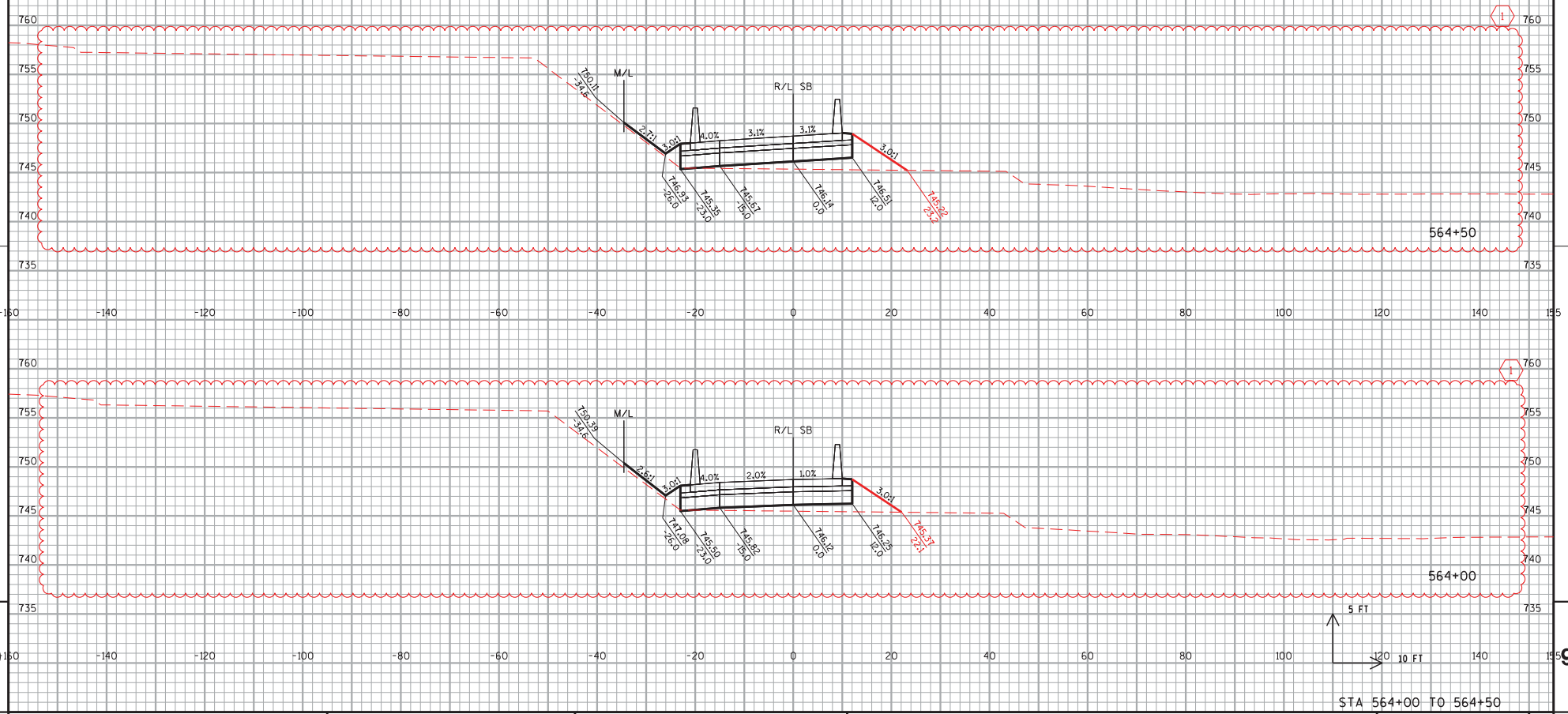
STA 563+00 TO 563+50

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SB | SHEET 5909 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090417_xs_SB.dgn PLOT DATE : 11-AUG-2015 11:03 PLOT BY : mscsxp PLOT NAME : 090417_xs_SB16 PLOT SCALE : 20:1

ALL WORK STAGE 2

Addendum No. 01
ID 1060-33-81
Revised Sheet 5910
August 17, 2015




STA 564+00 TO 564+50

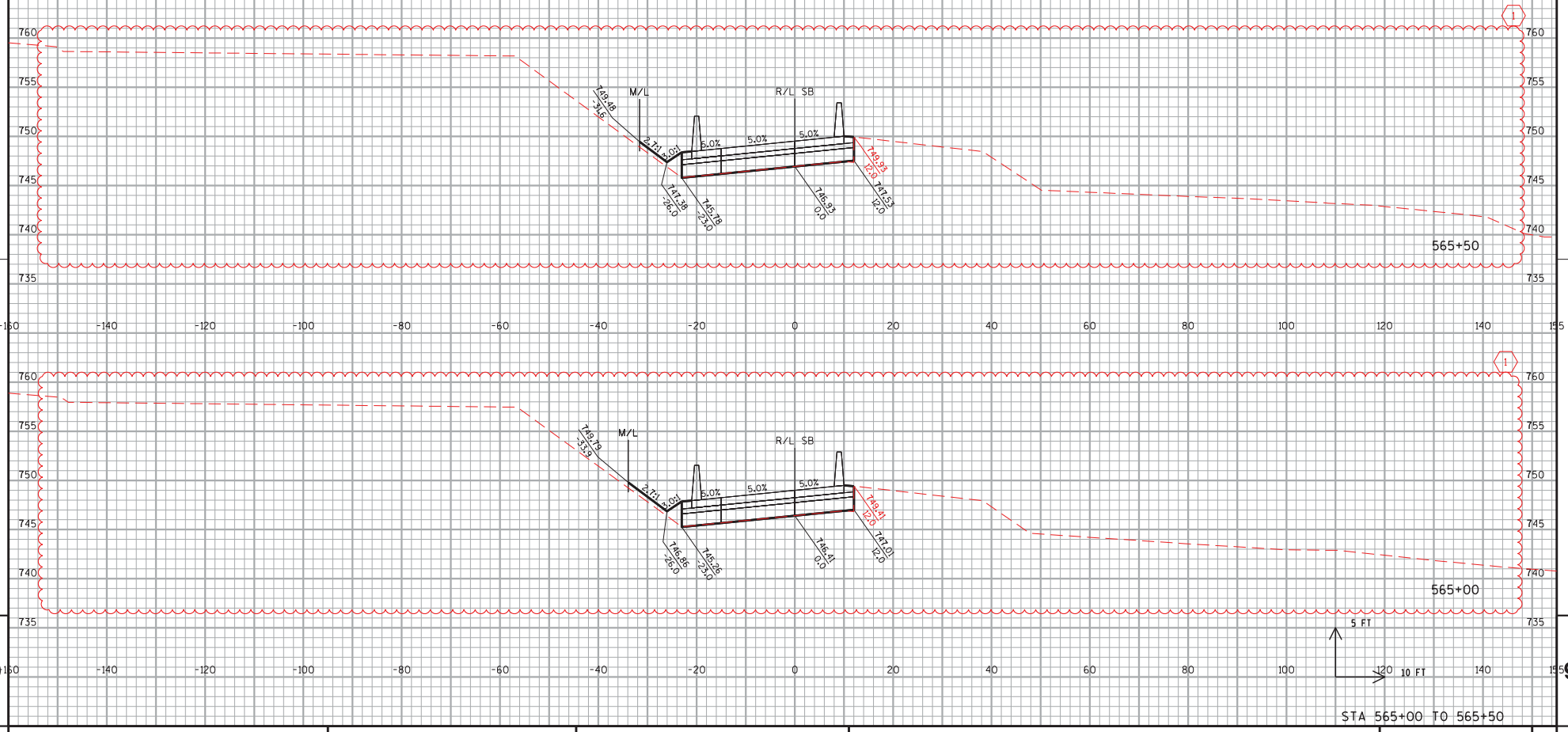
| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SB | SHEET 5910 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090417_xs_SB.dgn PLOT DATE : 11-AUG-2015 11:03 PLOT BY : mscsxp PLOT NAME : 090417_xs_SB17 PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

Addendum No. 01
ID 1060-33-81
Revised Sheet 5911
August 17, 2015

ALL WORK STAGE 2

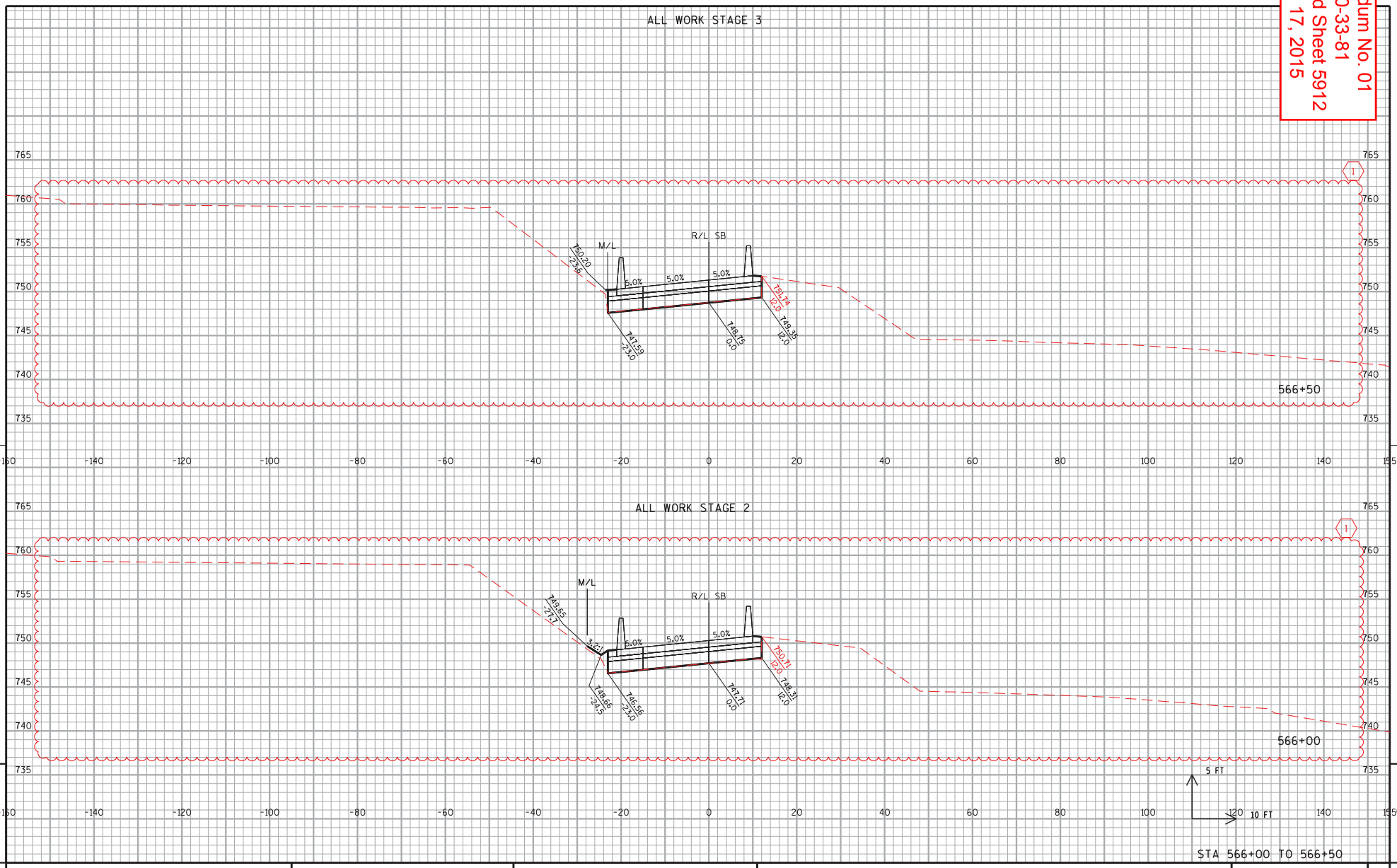



STA 565+00 TO 565+50

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SB | SHEET 5911 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090417_xs_SB.dgn PLOT DATE : 11-AUG-2015 11:03 PLOT BY : mscsxp PLOT NAME : 090417_xs_SB18 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5912
August 17, 2015



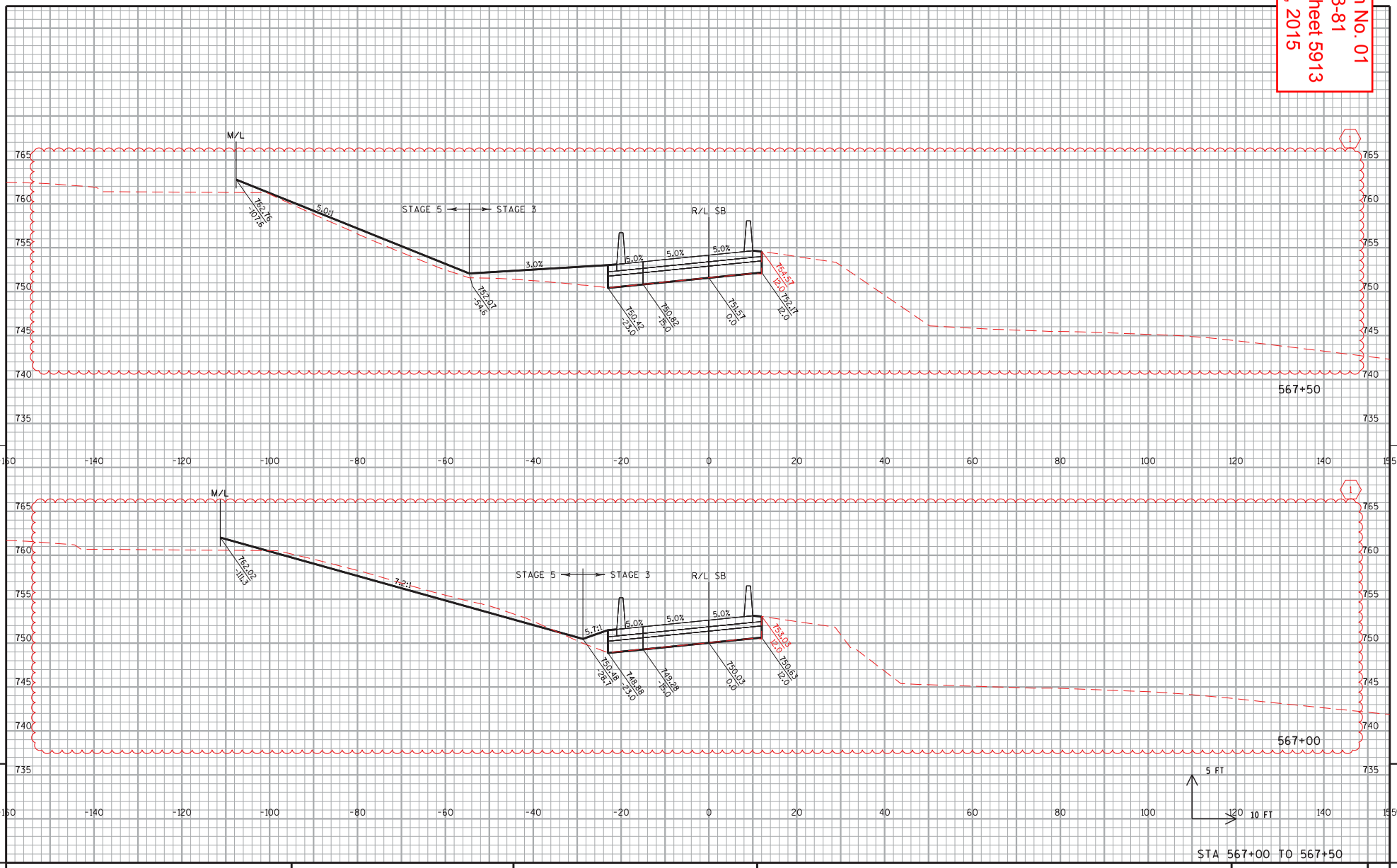

9 9

STA 566+00 TO 566+50

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SB | SHEET 5912 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090417_xs_SB.dgn PLOT DATE : 11-AUG-2015 11:03 PLOT BY : mscsxp PLOT NAME : 090417_xs_SB19 PLOT SCALE : 20:1

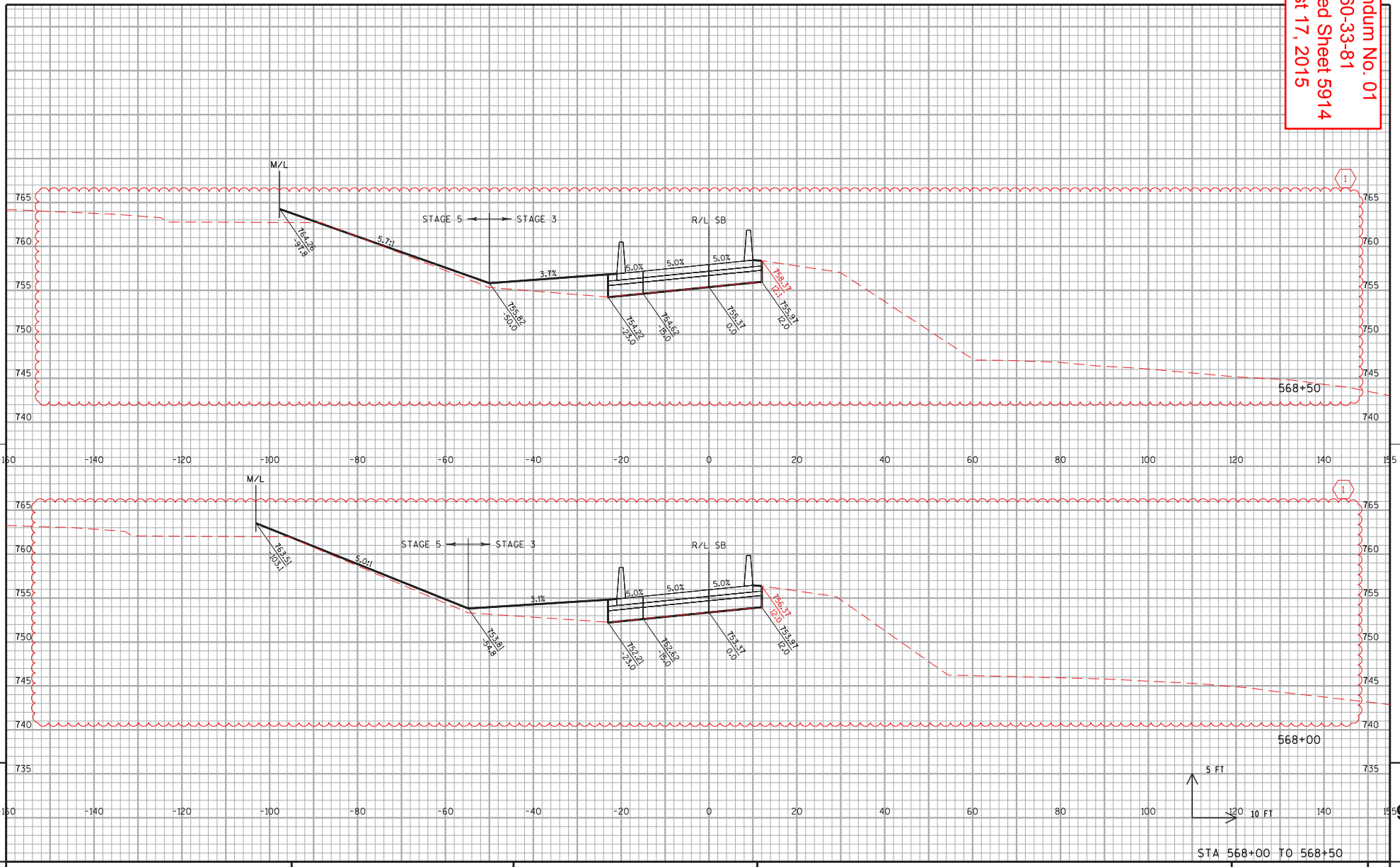
Addendum No. 01
ID 1060-33-81
Revised Sheet 5913
August 17, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SB | SHEET 5913 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090417_xs_SB.dgn PLOT DATE : 11-AUG-2015 11:03 PLOT BY : mscsxp PLOT NAME : 090417_xs_SB20 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5914
August 17, 2015

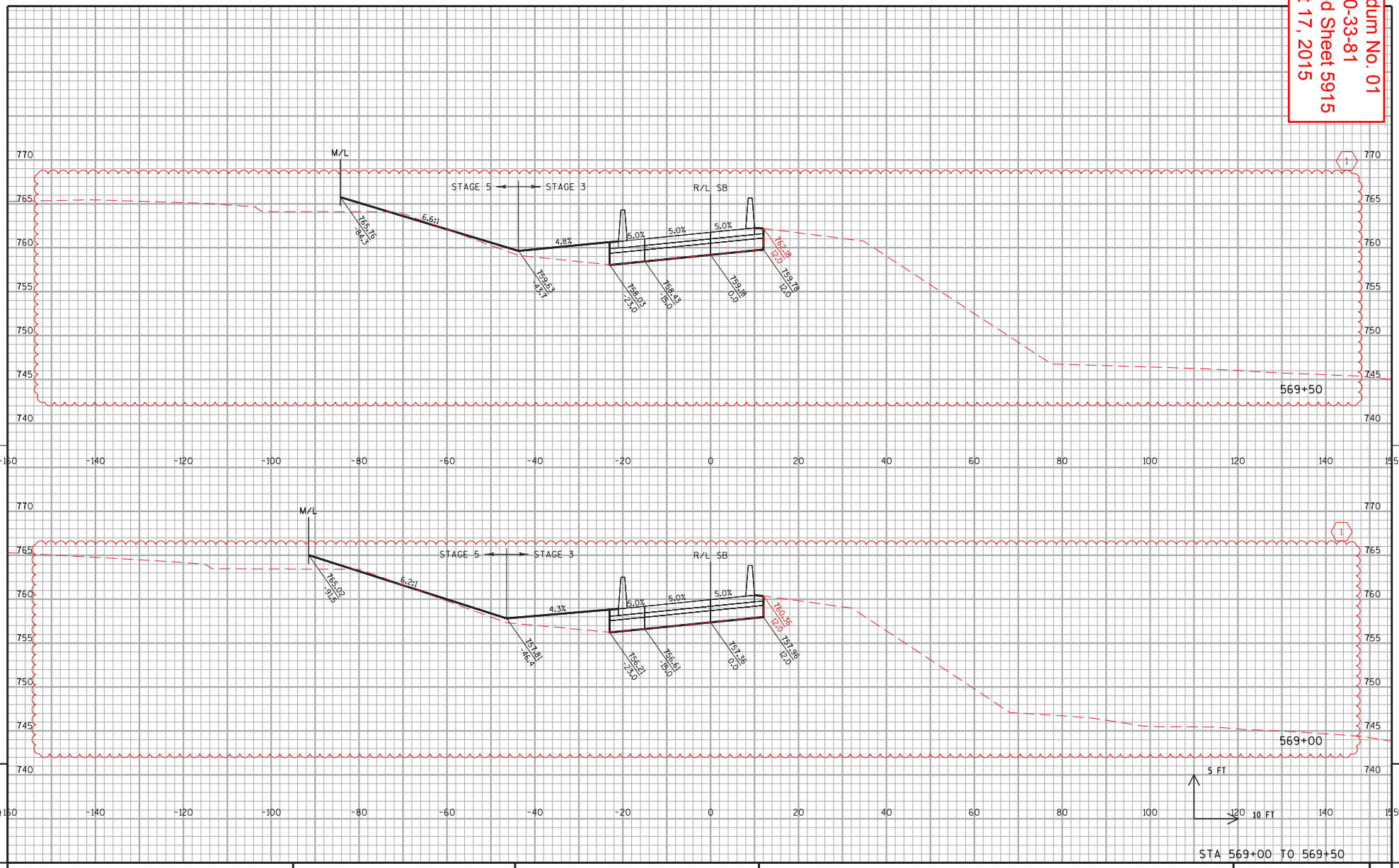



9 9

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SB | SHEET 5914 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090417_xs_SB.dgn PLOT DATE : 11-AUG-2015 11:03 PLOT BY : mscsxp PLOT NAME : 090417_xs_SB21 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5915
August 17, 2015



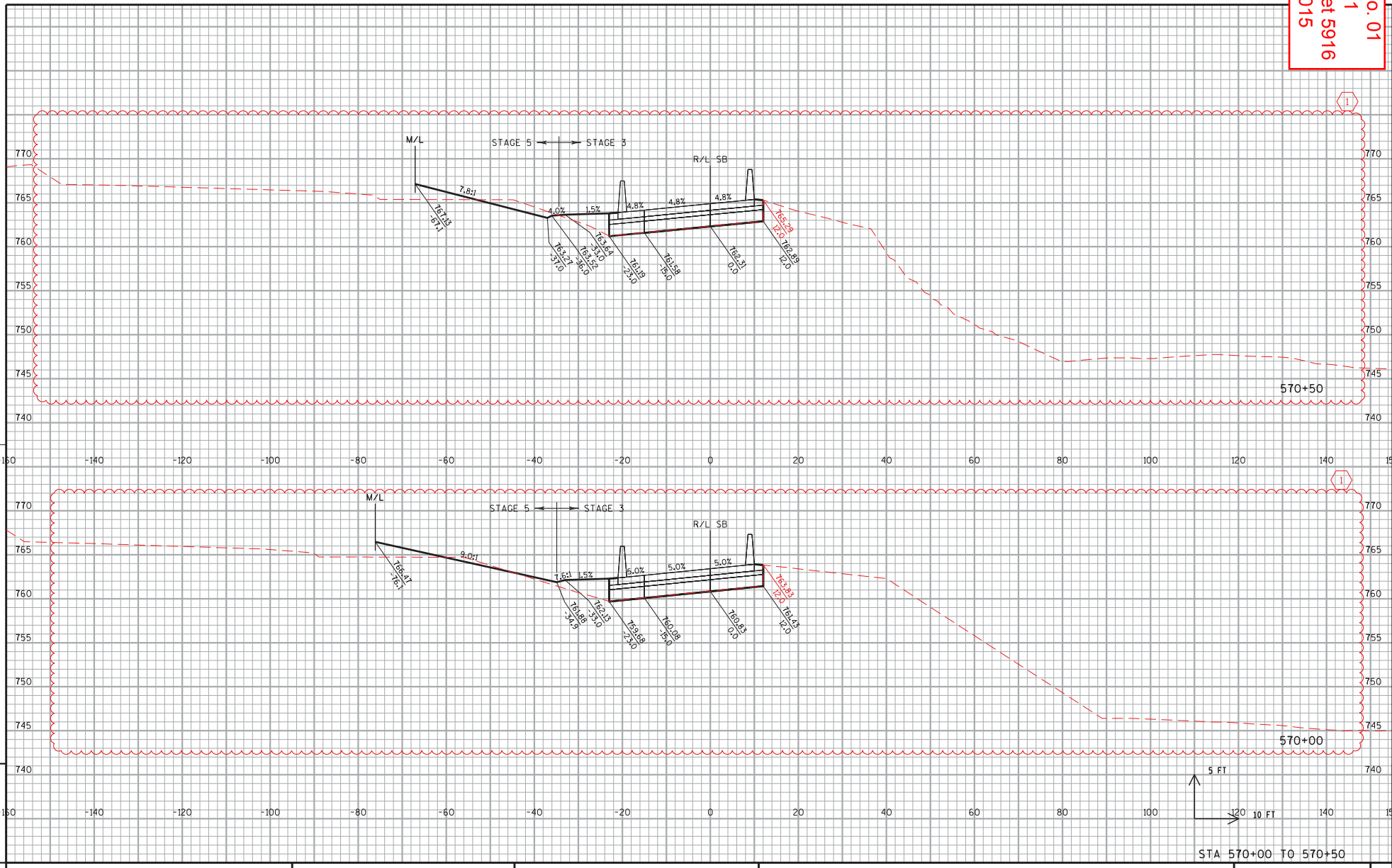

9 9

STA 569+00 TO 569+50

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SB | SHEET 5915 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090417_xs_SB.dgn PLOT DATE : 11-AUG-2015 11:03 PLOT BY : mscsxp PLOT NAME : 090417_xs_SB22 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5916
August 17, 2015



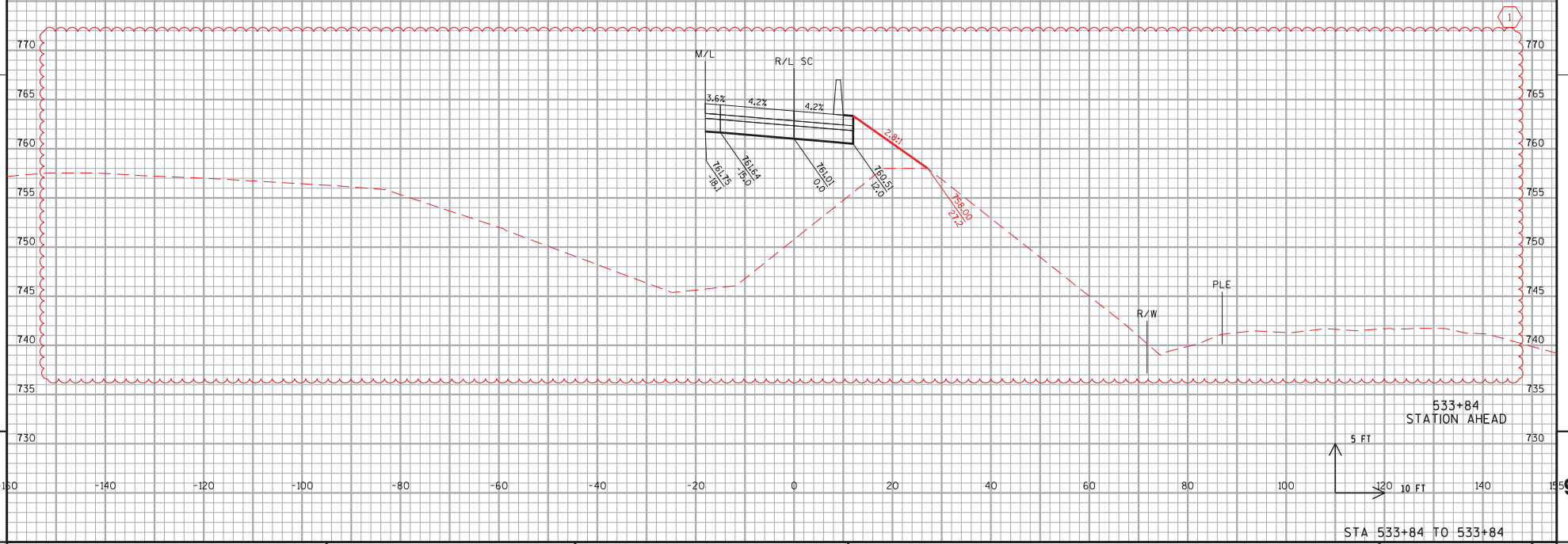

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SB | SHEET 5916 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090417_xs_SB.dgn PLOT DATE : 11-AUG-2015 11:03 PLOT BY : mscsxp PLOT NAME : 090417_xs_SB23 PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

ALL WORK STAGE 2

Addendum No. 01
ID 1060-33-81
Revised Sheet 5922
August 17, 2015




STA 533+84 TO 533+84

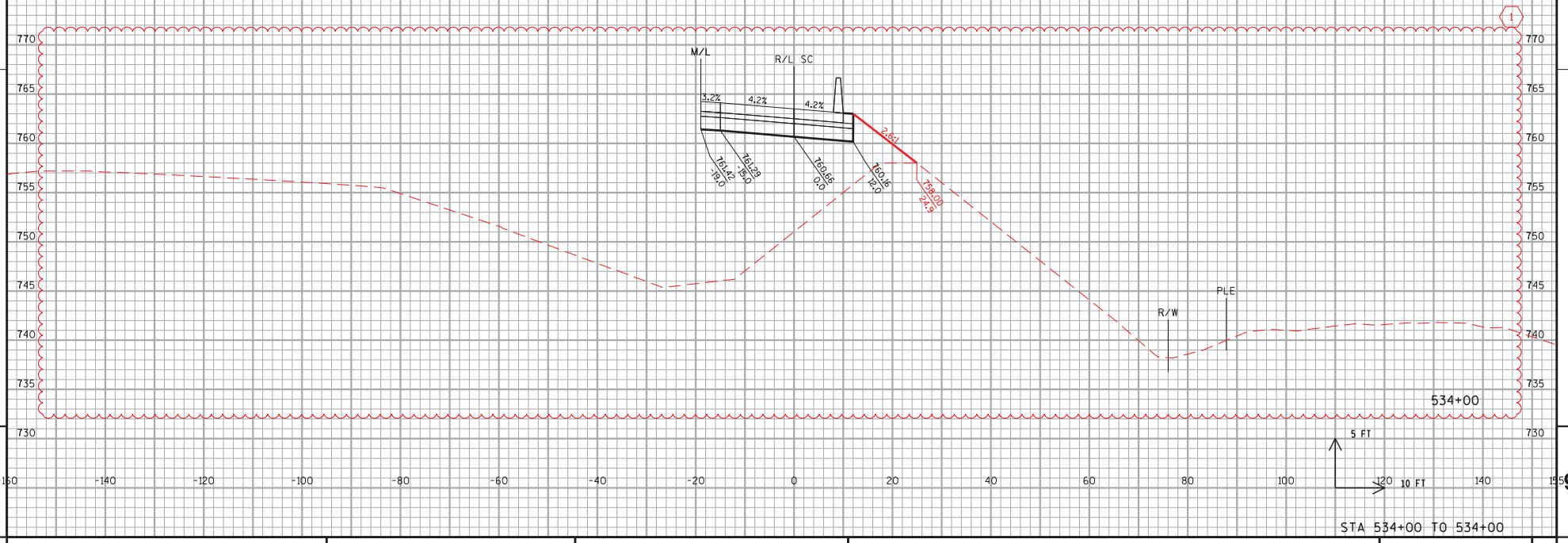
| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SC | SHEET 5922 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090418_xs_SC.dgn PLOT DATE : 11-AUG-2015 13:13 PLOT BY : mscsxp PLOT NAME : 090418_xs_SC PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

ALL WORK STAGE 2

Addendum No. 01
ID 1060-33-81
Revised Sheet 5923
August 17, 2015



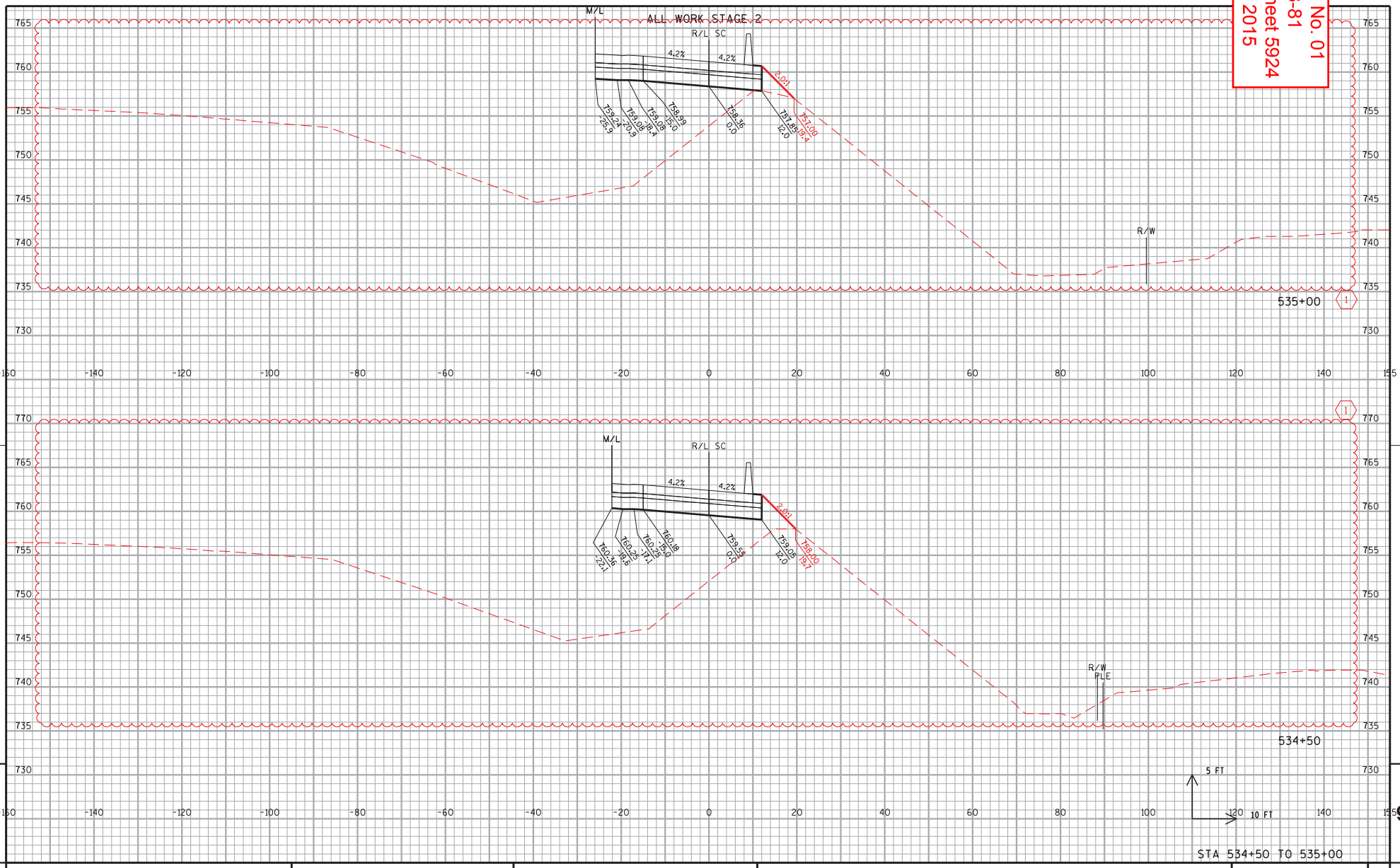

STA 534+00 TO 534+00

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SC | SHEET 5923 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090418_xs_SC.dgn PLOT DATE : 11-AUG-2015 13:13 PLOT BY : mscsxp PLOT NAME : 090418_xs_SC1 PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

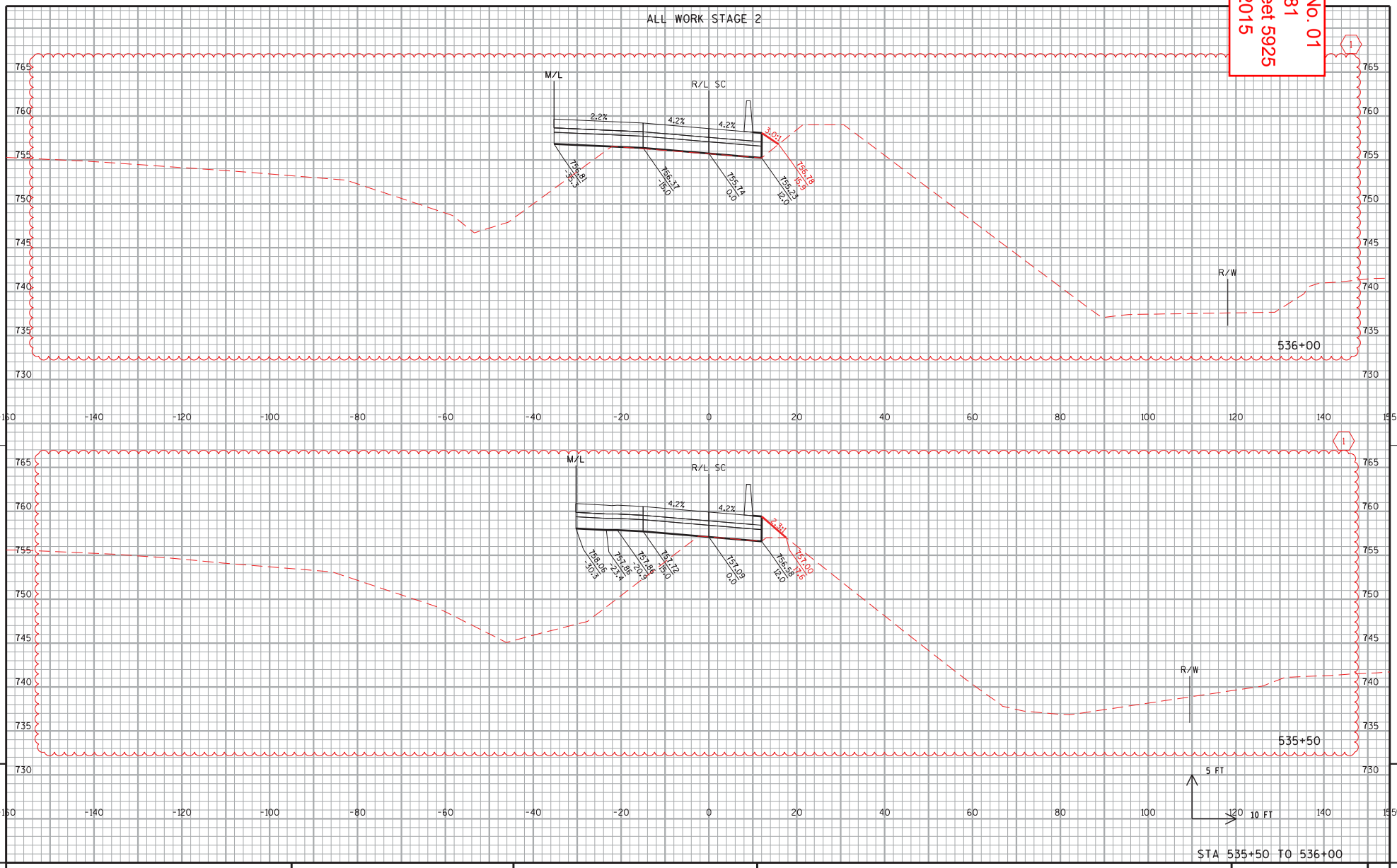
Addendum No. 01
ID 1060-33-81
Revised Sheet 5924
August 17, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SC | SHEET 5924 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090418_xs_SC.dgn PLOT DATE : 11-AUG-2015 13:13 PLOT BY : mscsxp PLOT NAME : 090418_xs_SC2 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5925
August 17, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SC | SHEET 5925 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090418_xs_SC.dgn PLOT DATE : 11-AUG-2015 13:13 PLOT BY : mscsxp PLOT NAME : 090418_xs_SC3 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5926
August 17, 2015

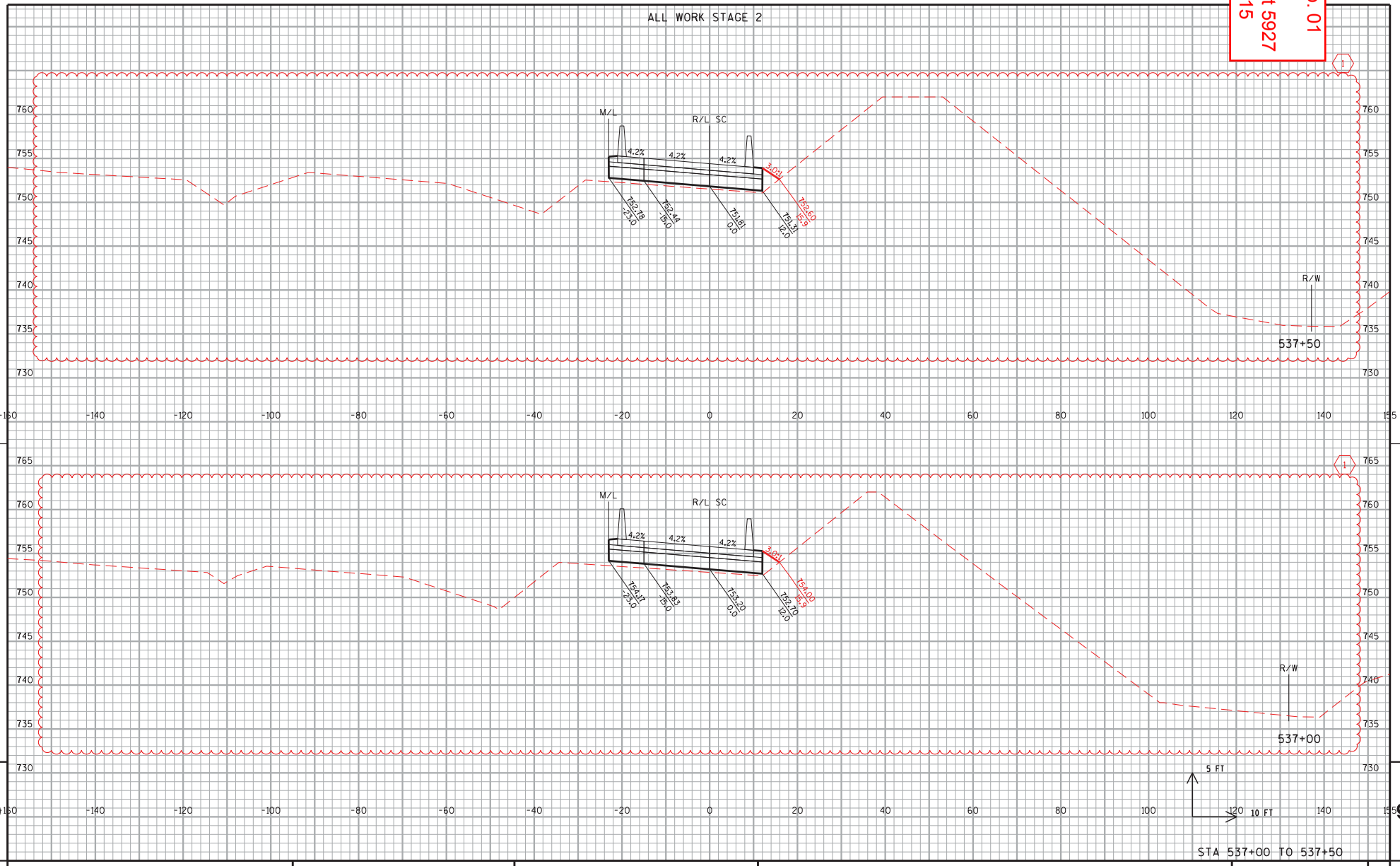



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SC | SHEET 5926 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090418_xs_SC.dgn PLOT DATE : 11-AUG-2015 13:13 PLOT BY : mscsxp PLOT NAME : 090418_xs_SC4 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5927
August 17, 2015

ALL WORK STAGE 2



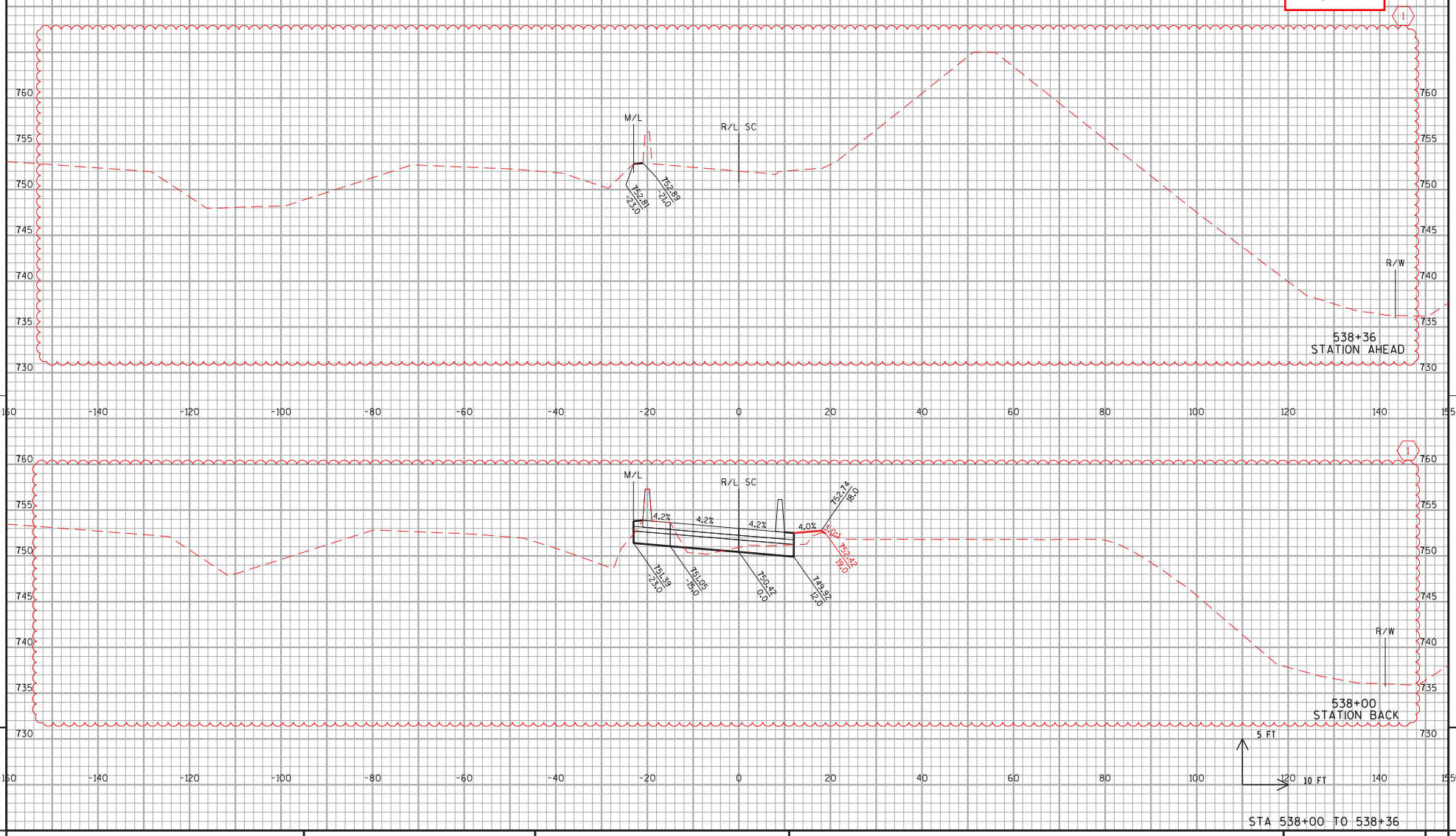

9 9

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SC | SHEET 5927 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090418_xs_SC.dgn PLOT DATE : 11-AUG-2015 13:13 PLOT BY : mscsxp PLOT NAME : 090418_xs_SC5 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 5928
August 17, 2015

ALL WORK STAGE 2



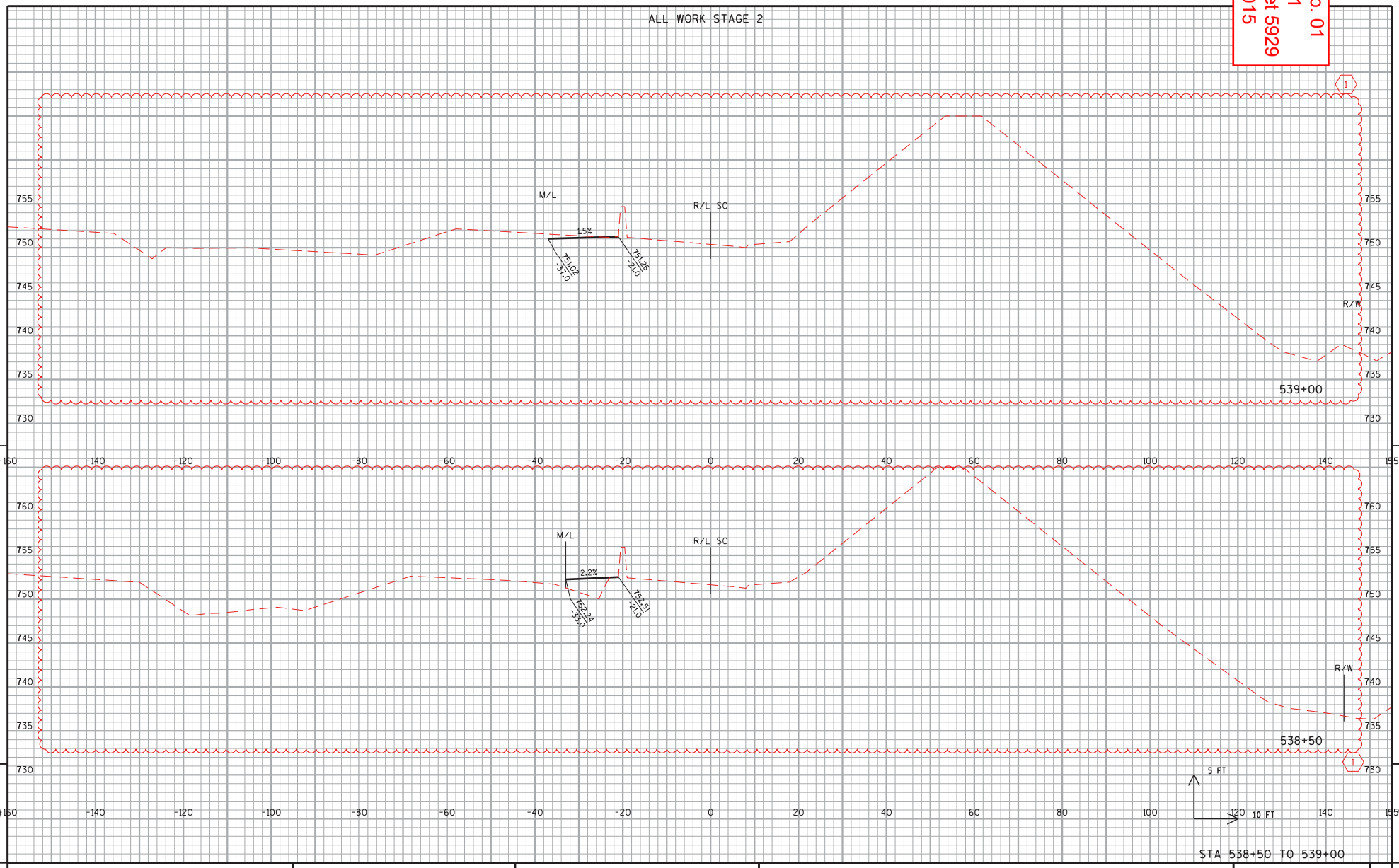

STA 538+00 TO 538+36

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SC | SHEET 5928 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090418_xs_SC.dgn PLOT DATE : 11-AUG-2015 13:13 PLOT BY : mscsxp PLOT NAME : 090418_xs_SC6 PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

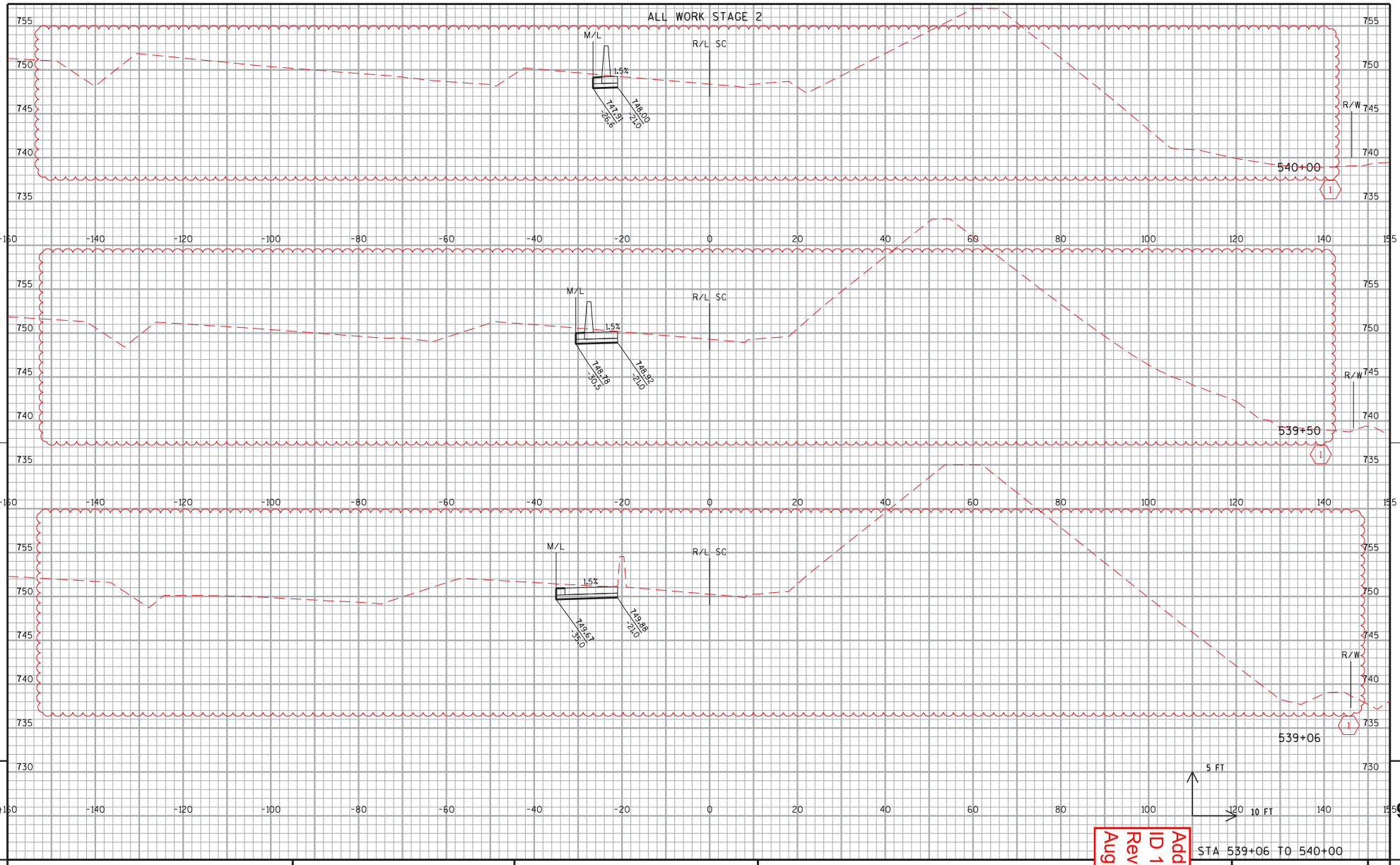
Addendum No. 01
ID 1060-33-81
Revised Sheet 5929
August 17, 2015




9 9

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SC | SHEET 5929 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090418_xs_SC.dgn PLOT DATE : 11-AUG-2015 13:13 PLOT BY : mscsxp PLOT NAME : 090418_xs_SC7 PLOT SCALE : 20:1




9

9

STA 539+06 TO 540+00

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SC | SHEET 5930 | E |
|---|---|---|---|---|---|

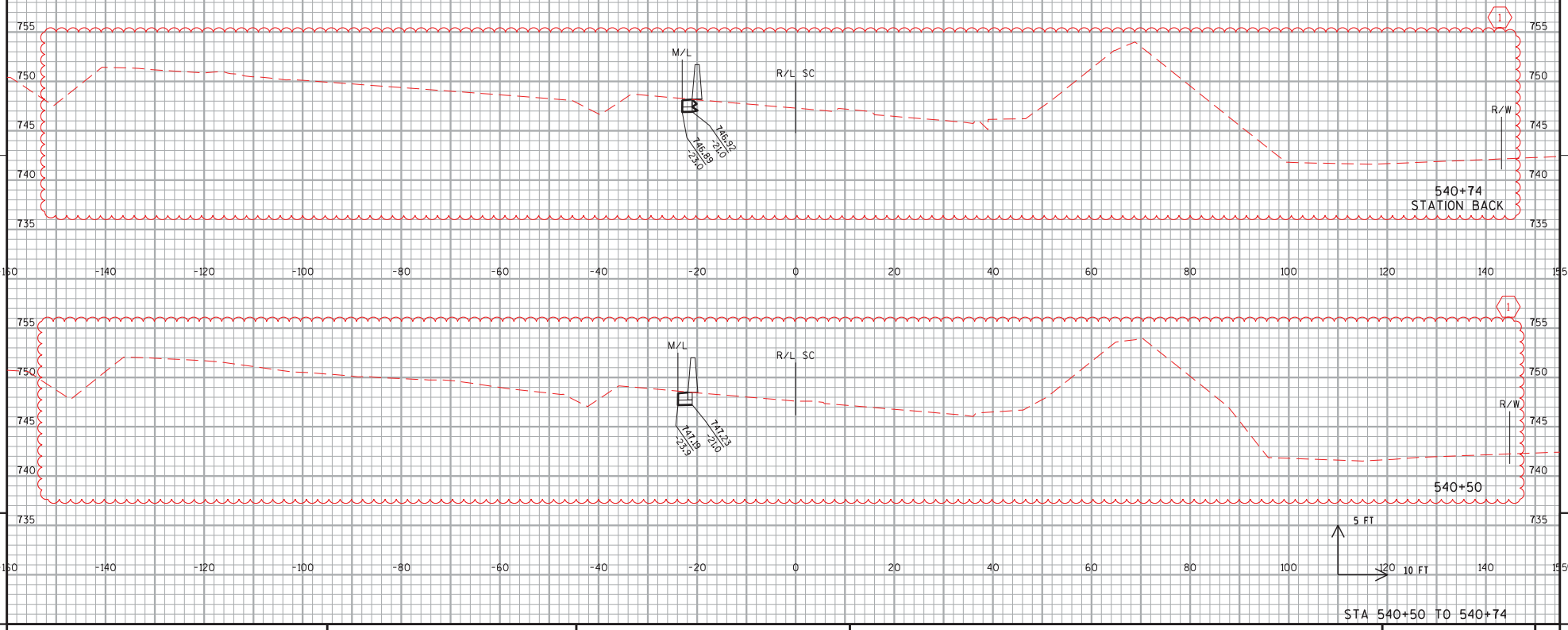
FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090418_xs_SC.dgn PLOT DATE : 11-AUG-2015 13:13 PLOT BY : mscsxp PLOT NAME : 090418_xs_SC8

WISDOT/CADDS SHEET 21

Addendum No. 01
ID 1060-33-81
Revised Sheet 5930
August 17, 2015

ALL WORK STAGE 2

Addendum No. 01
ID 1060-33-81
Revised Sheet 5931
August 17, 2015







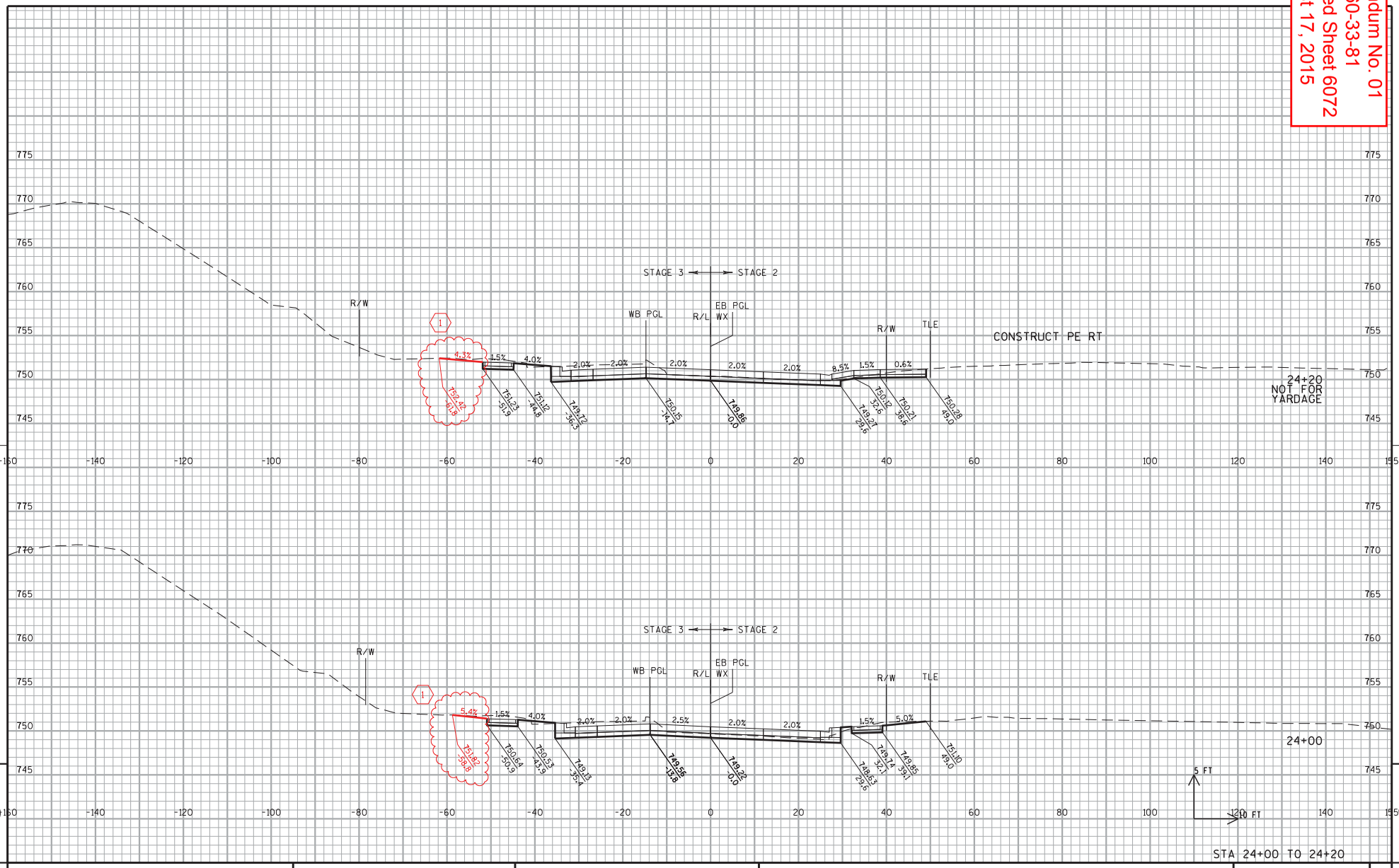
9 9

STA 540+50 TO 540+74

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP SC | SHEET 5931 | E |
|---|---|---|---|---|---|

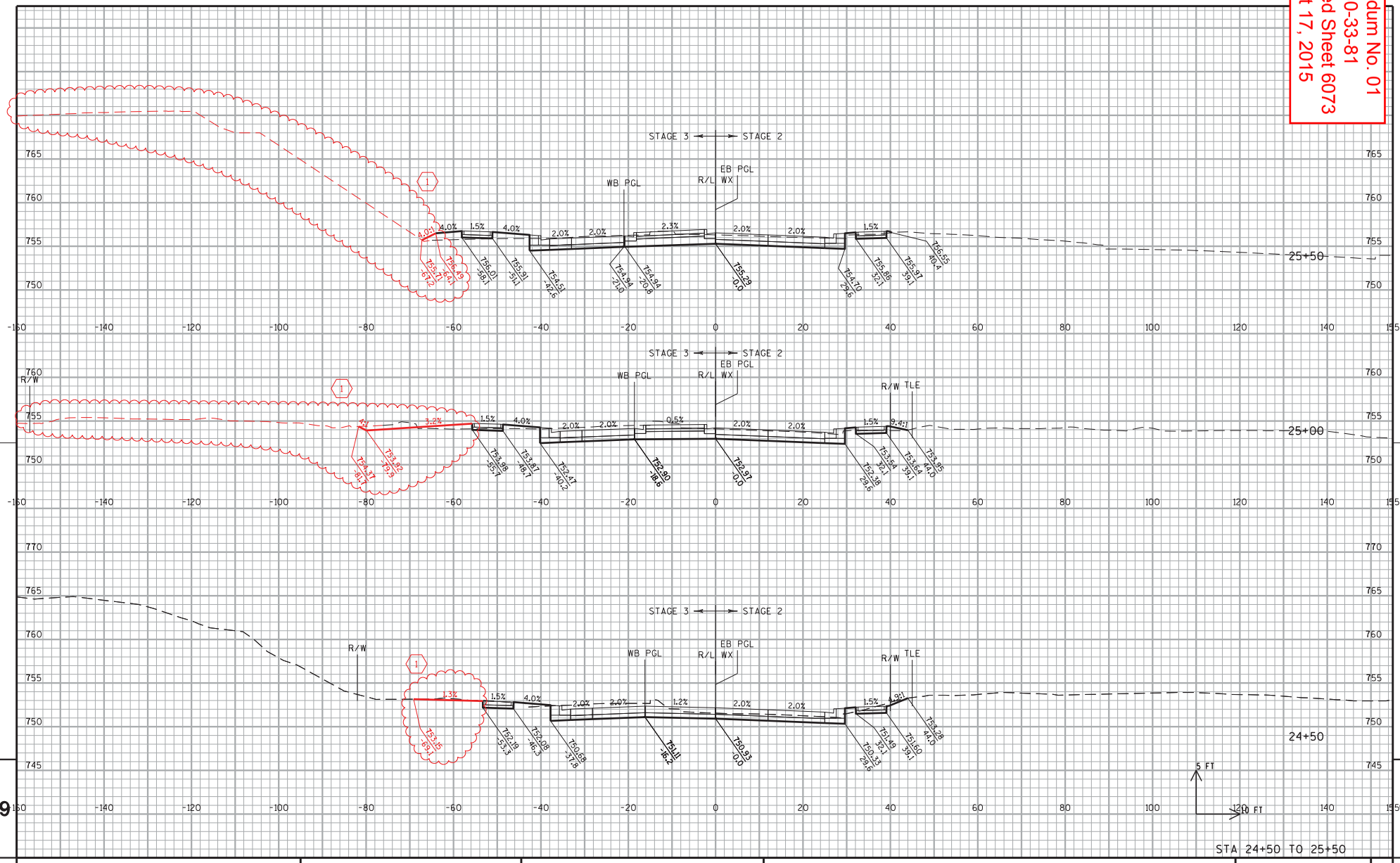
FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090418_xs_SC.dgn PLOT DATE : 11-AUG-2015 13:13 PLOT BY : mscsxp PLOT NAME : 090418_xs_SC9 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 6072
August 17, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: W. WISCONSIN AVENUE | SHEET 6072 | E |
|---|---|---|---|---|---|

Addendum No. 01
ID 1060-33-81
Revised Sheet 6073
August 17, 2015

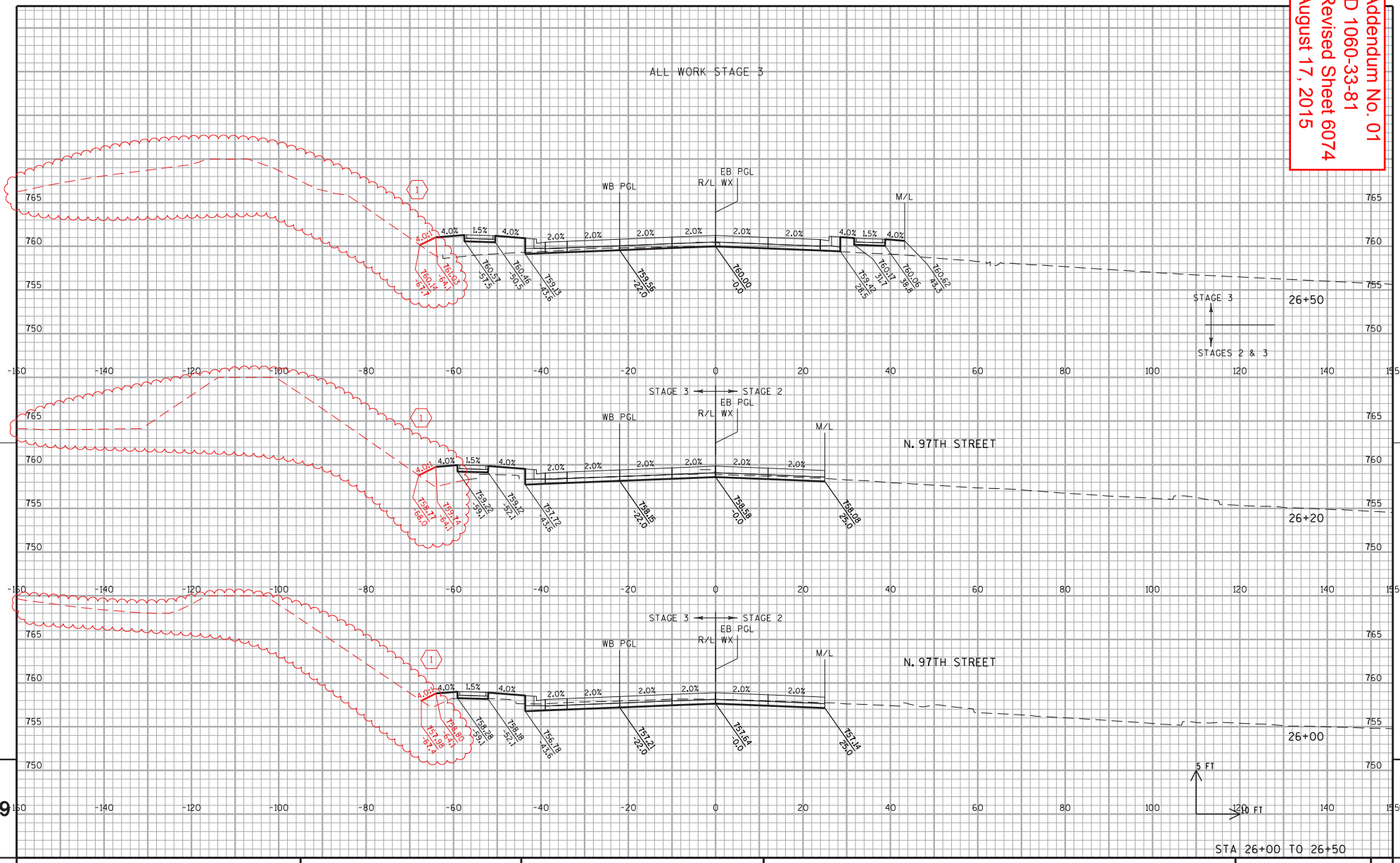



9 9

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: W. WISCONSIN AVENUE | SHEET 6073 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090504_xs_WX.dgn PLOT DATE : 12-AUG-2015 18:36 PLOT BY : mscgzl PLOT NAME : 090504_xs_WX6 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 6074
August 17, 2015

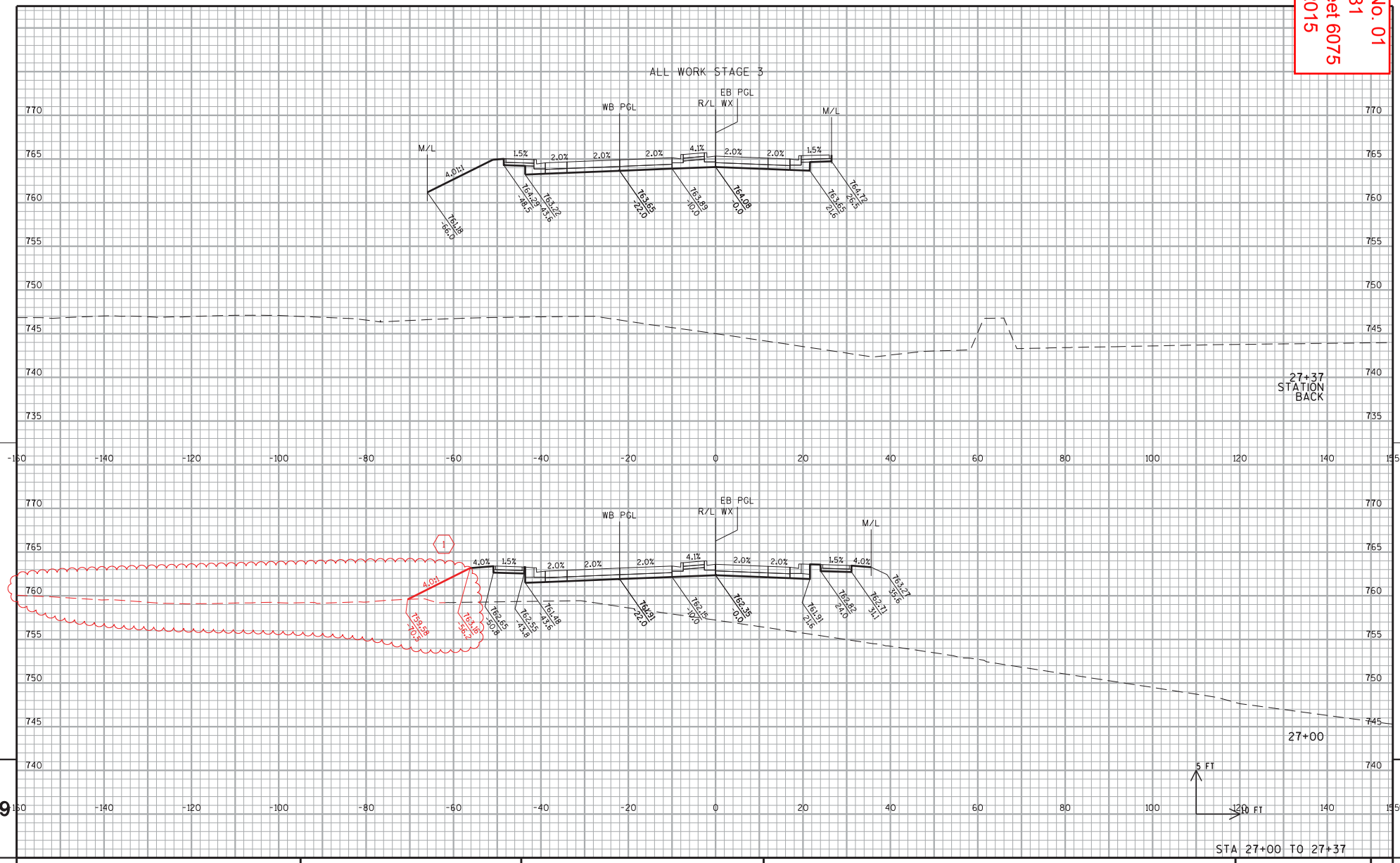



9 9

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: W. WISCONSIN AVENUE | SHEET 6074 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090504_xs_WX.dgn PLOT DATE : 12-AUG-2015 18:36 PLOT BY : mscgz1 PLOT NAME : 090504_xs_WX7 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 6075
August 17, 2015

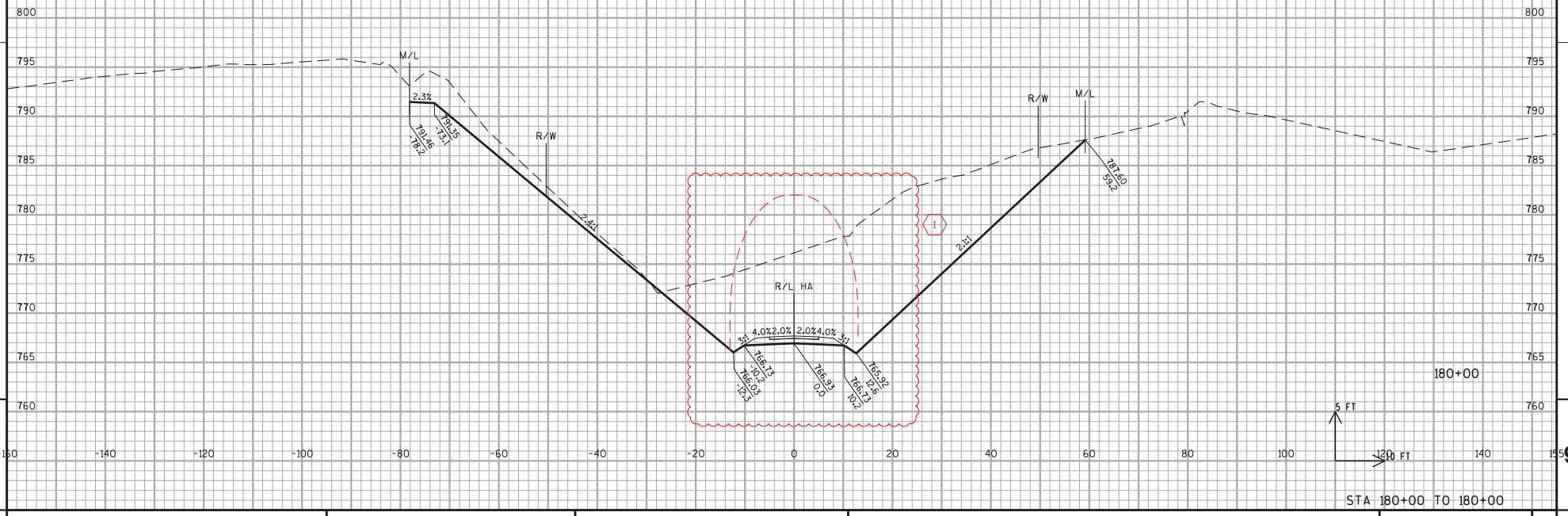



| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: W. WISCONSIN AVENUE | SHEET 6075 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090504_xs_WX.dgn PLOT DATE : 12-AUG-2015 18:36 PLOT BY : mscgz1 PLOT NAME : 090504_xs_WX8 PLOT SCALE : 20:1

ALL WORK STAGE 8

Addendum No. 01
ID 1060-33-81
Revised Sheet 6199
August 17, 2015




9 9

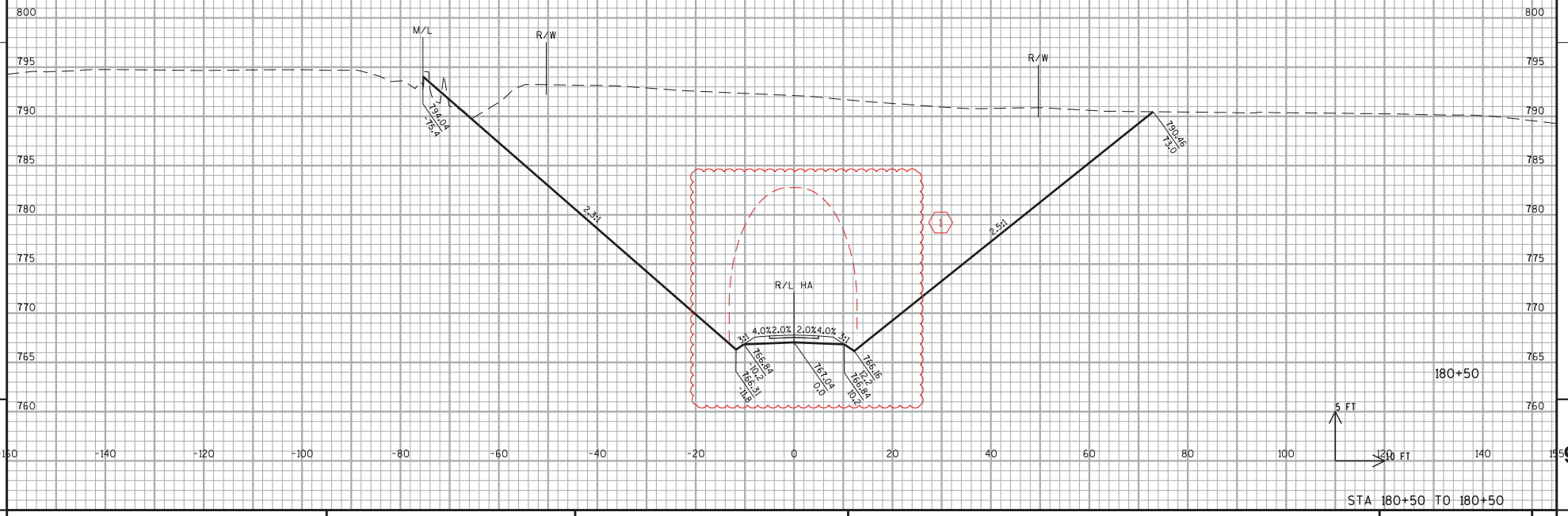
| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: HANK AARON STATE TRAIL | SHEET 6199 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090521_xs_HA.dgn PLOT DATE : 13-AUG-2015 10:14 PLOT BY : MSCD1S PLOT NAME : 090521_xs_HA80 PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

ALL WORK STAGE 8

Addendum No. 01
ID 1060-33-81
Revised Sheet 6200
August 17, 2015




STA 180+50 TO 180+50

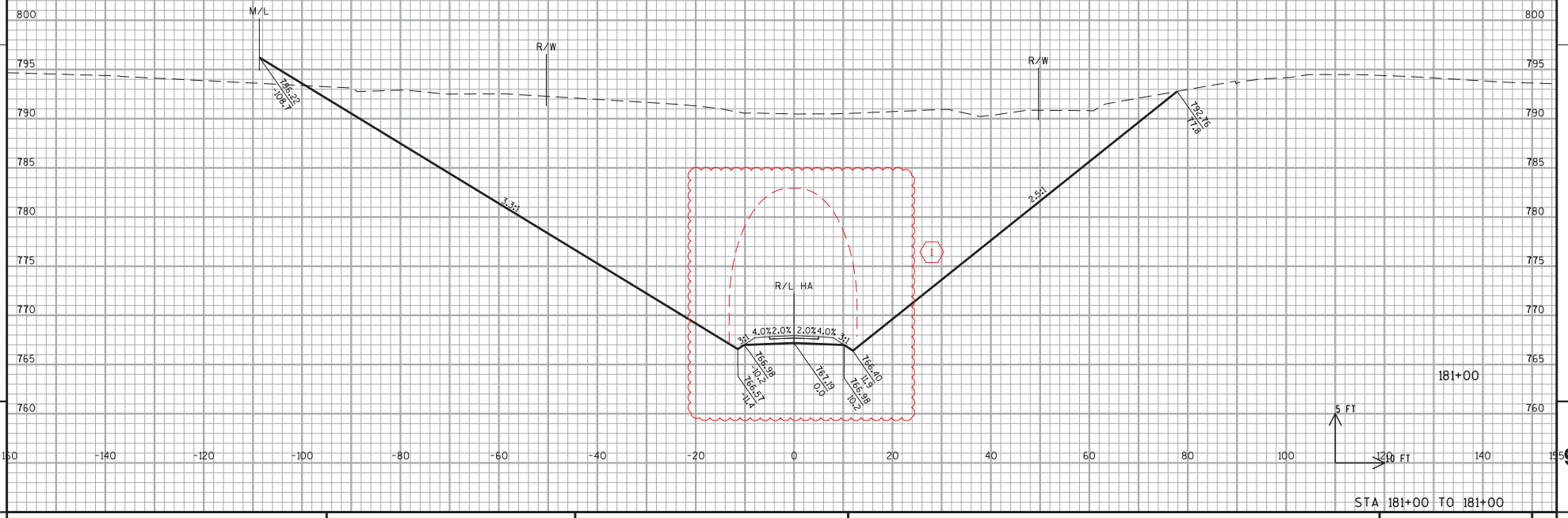
| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: HANK AARON STATE TRAIL | SHEET 6200 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090521_xs_HA.dgn PLOT DATE : 13-AUG-2015 10:14 PLOT BY : MSCD1S PLOT NAME : 090521_xs_HA81 PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

ALL WORK STAGE 8

Addendum No. 01
ID 1060-33-81
Revised Sheet 6201
August 17, 2015



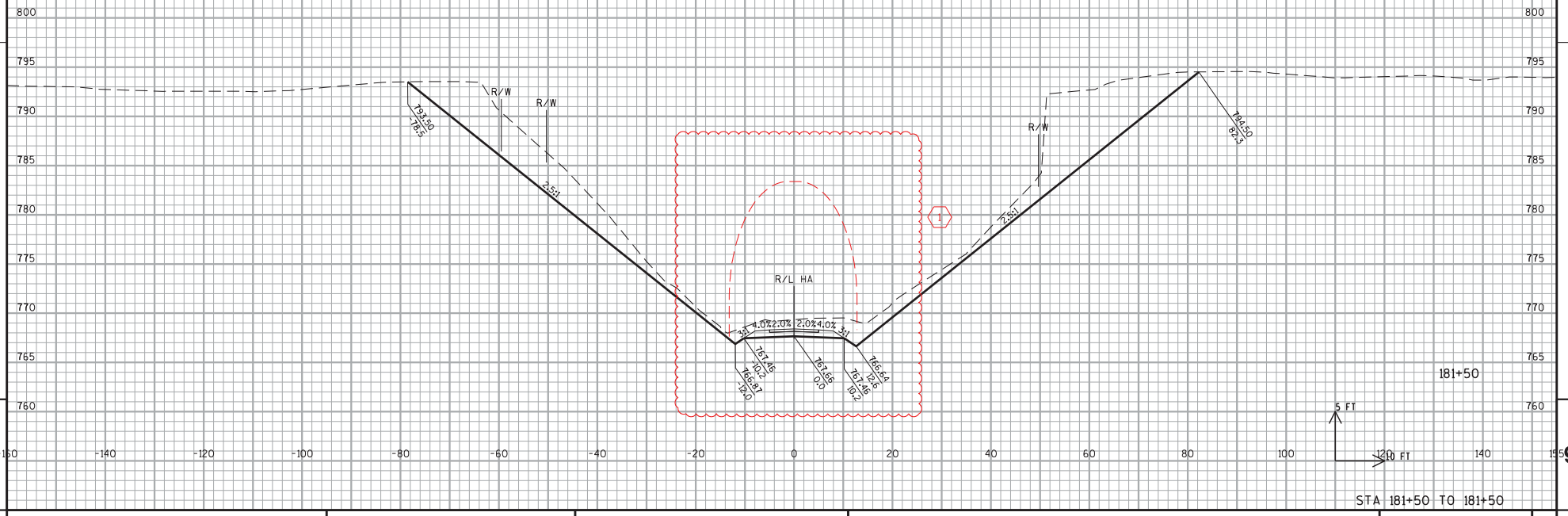

STA 181+00 TO 181+00

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: HANK AARON STATE TRAIL | SHEET 6201 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090521_xs_HA.dgn PLOT DATE : 13-AUG-2015 10:14 PLOT BY : MSCD1S PLOT NAME : 090521_xs_HA82 PLOT SCALE : 20:1

ALL WORK STAGE 8

Addendum No. 01
ID 1060-33-81
Revised Sheet 6202
August 17, 2015



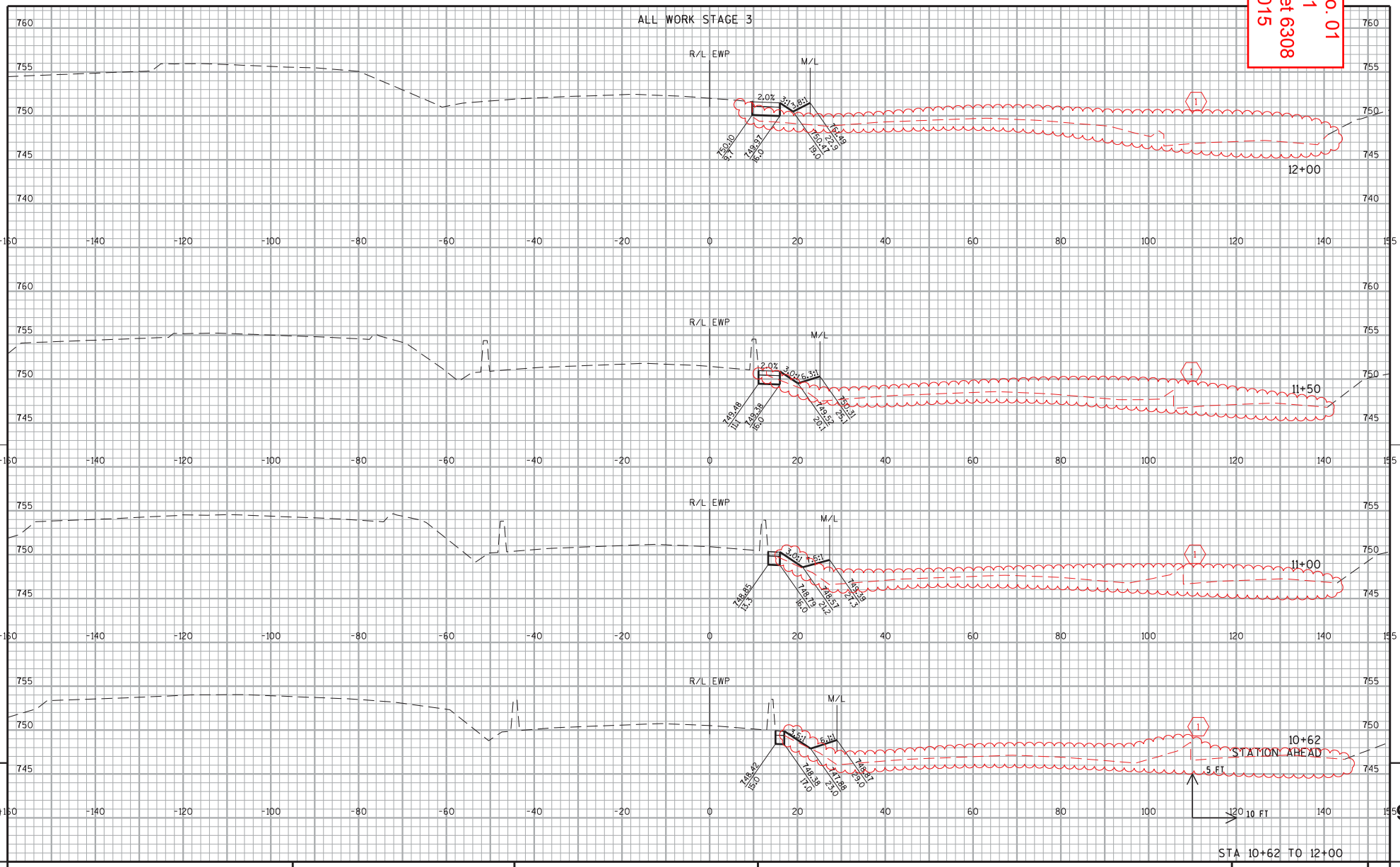

STA 181+50 TO 181+50

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: HANK AARON STATE TRAIL | SHEET 6202 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090521_xs_HA.dgn PLOT DATE : 13-AUG-2015 10:14 PLOT BY : MSCD1S PLOT NAME : 090521_xs_HA83 PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

Addendum No. 01
ID 1060-33-81
Revised Sheet 6308
August 17, 2015

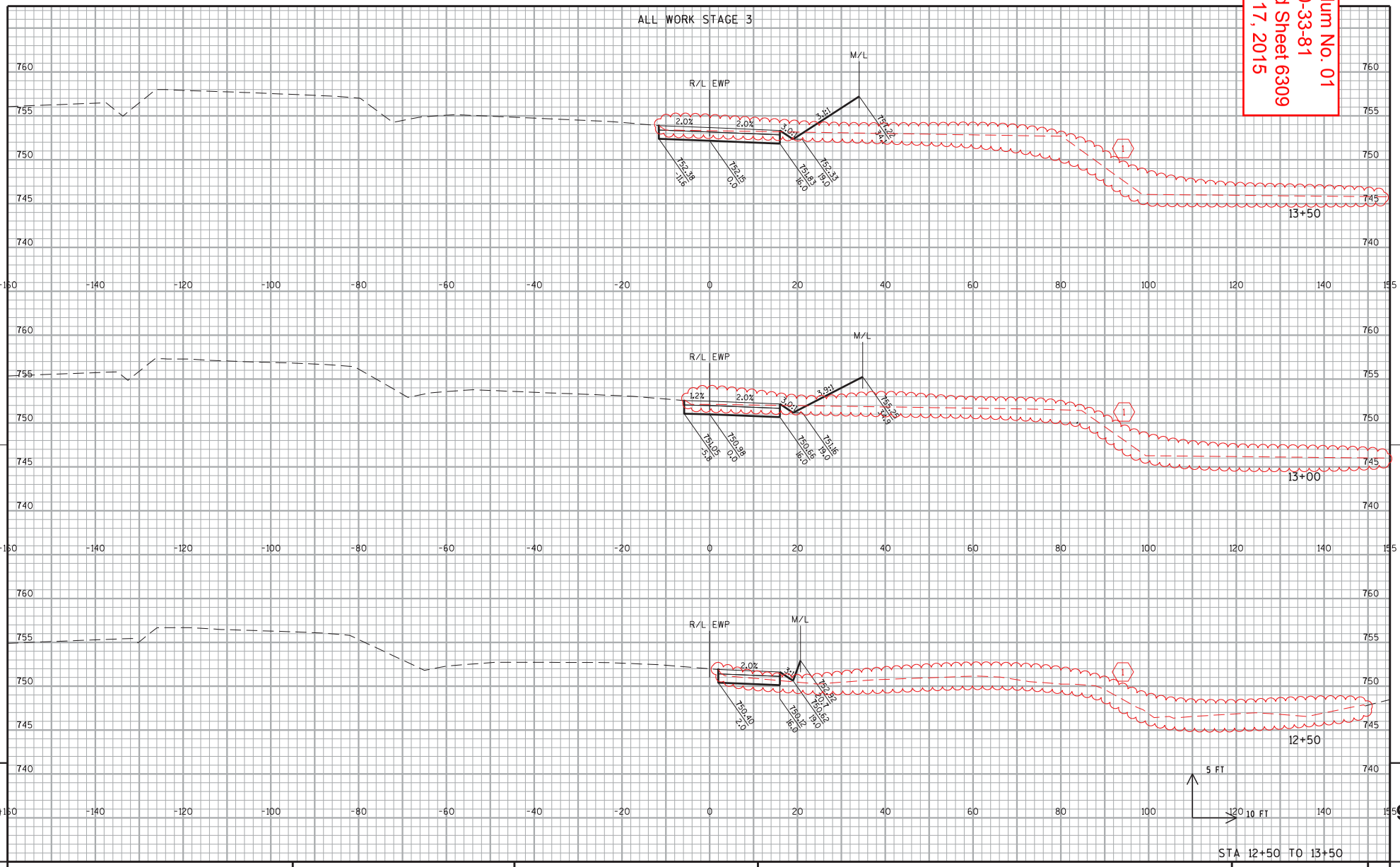



9 9

| PROJECT NO: 1060-33-81 | HWY: IH 94/IH 894/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP EWP | SHEET 6308 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090611_xs_EWP.dgn PLOT DATE : 11-AUG-2015 14:10 PLOT BY : mscgz1 PLOT NAME : 090611_xs_EWP PLOT SCALE : 20:1

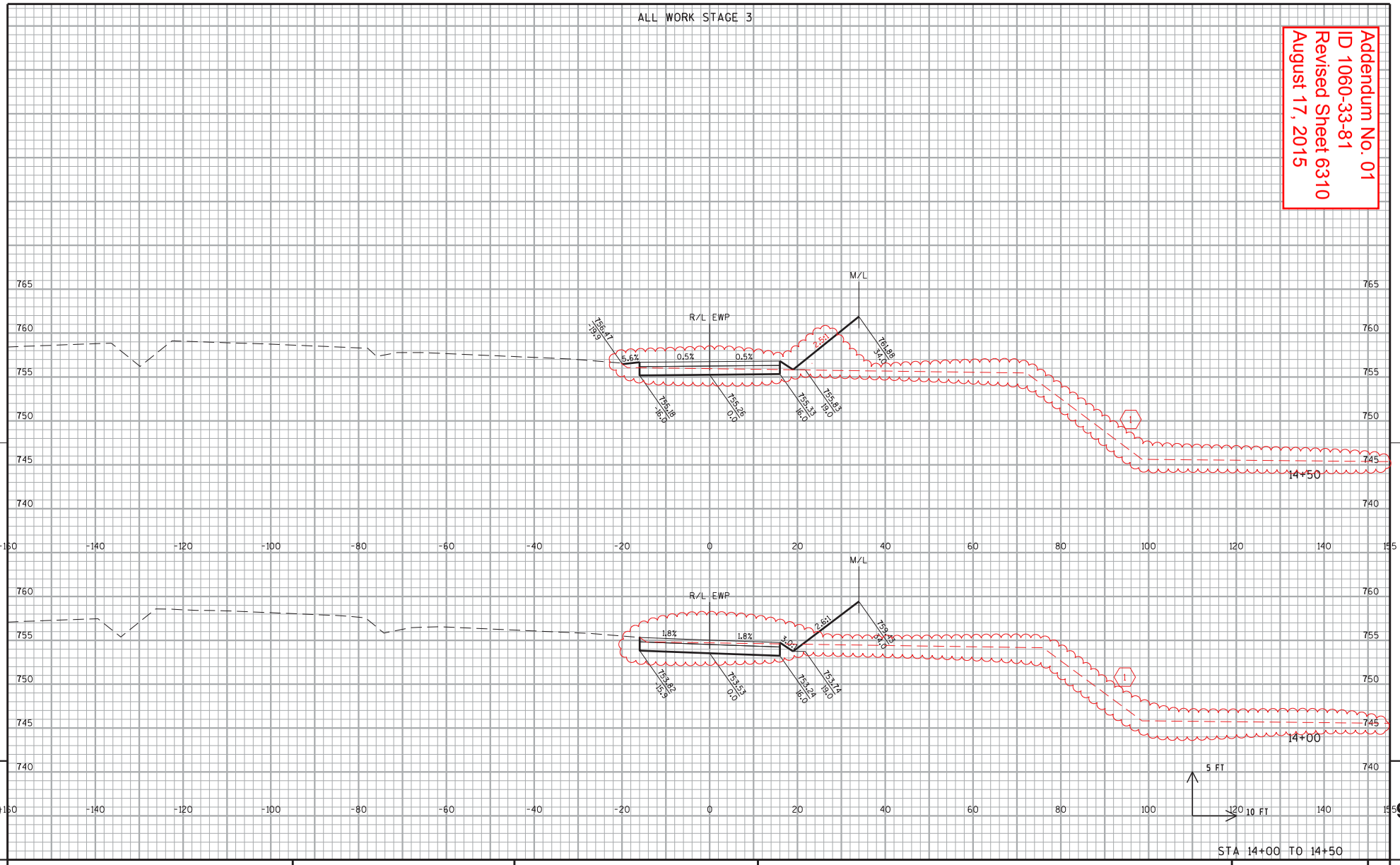
Addendum No. 01
ID 1060-33-81
Revised Sheet 6309
August 17, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 94/IH 894/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP EWP | SHEET 6309 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090611_xs_EWP.dgn PLOT DATE : 11-AUG-2015 14:10 PLOT BY : mscgz1 PLOT NAME : 090611_xs_EWP1 PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21




9

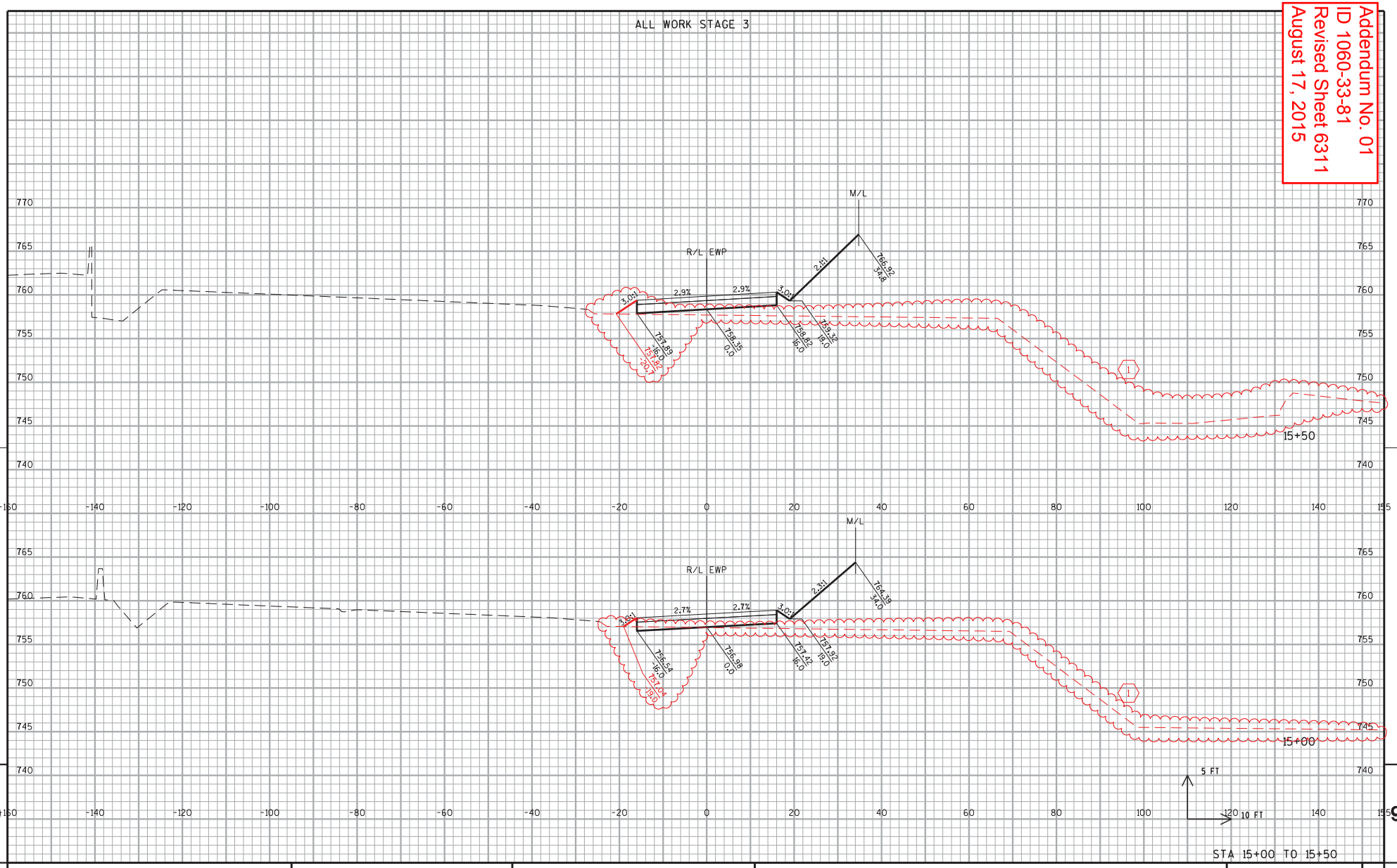
9

STA 14+00 TO 14+50

| PROJECT NO: 1060-33-81 | HWY: IH 94/IH 894/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP EWP | SHEET 6310 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090611_xs_EWP.dgn PLOT DATE : 11-AUG-2015 14:10 PLOT BY : mscgz1 PLOT NAME : 090611_xs_EWP2 PLOT SCALE : 20:1

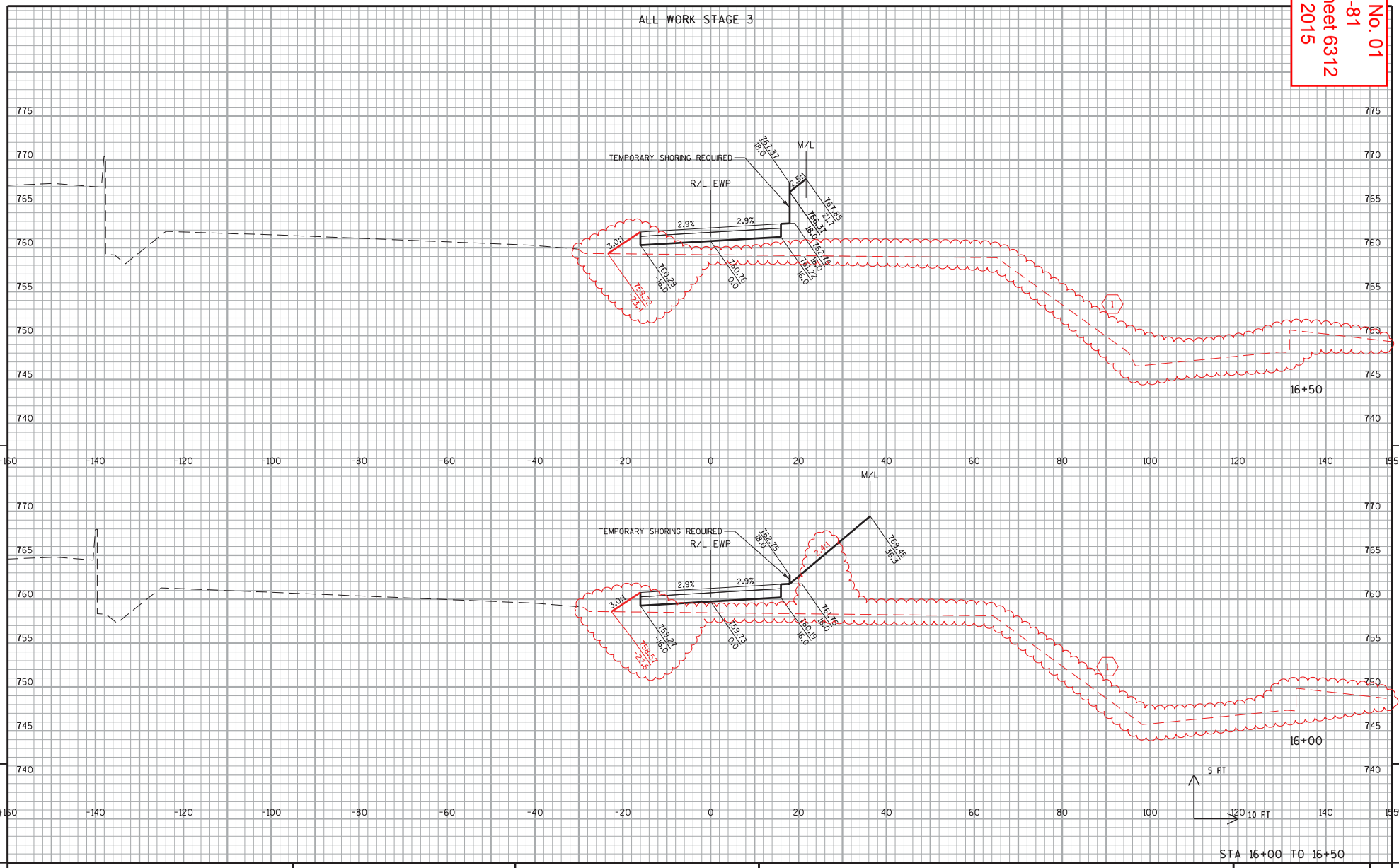
Addendum No. 01
ID 1060-33-81
Revised Sheet 6311
August 17, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 94/IH 894/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP EWP | SHEET 6311 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090611_xs_EWP.dgn PLOT DATE : 11-AUG-2015 14:10 PLOT BY : mscgz1 PLOT NAME : 090611_xs_EWP3 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 6312
August 17, 2015



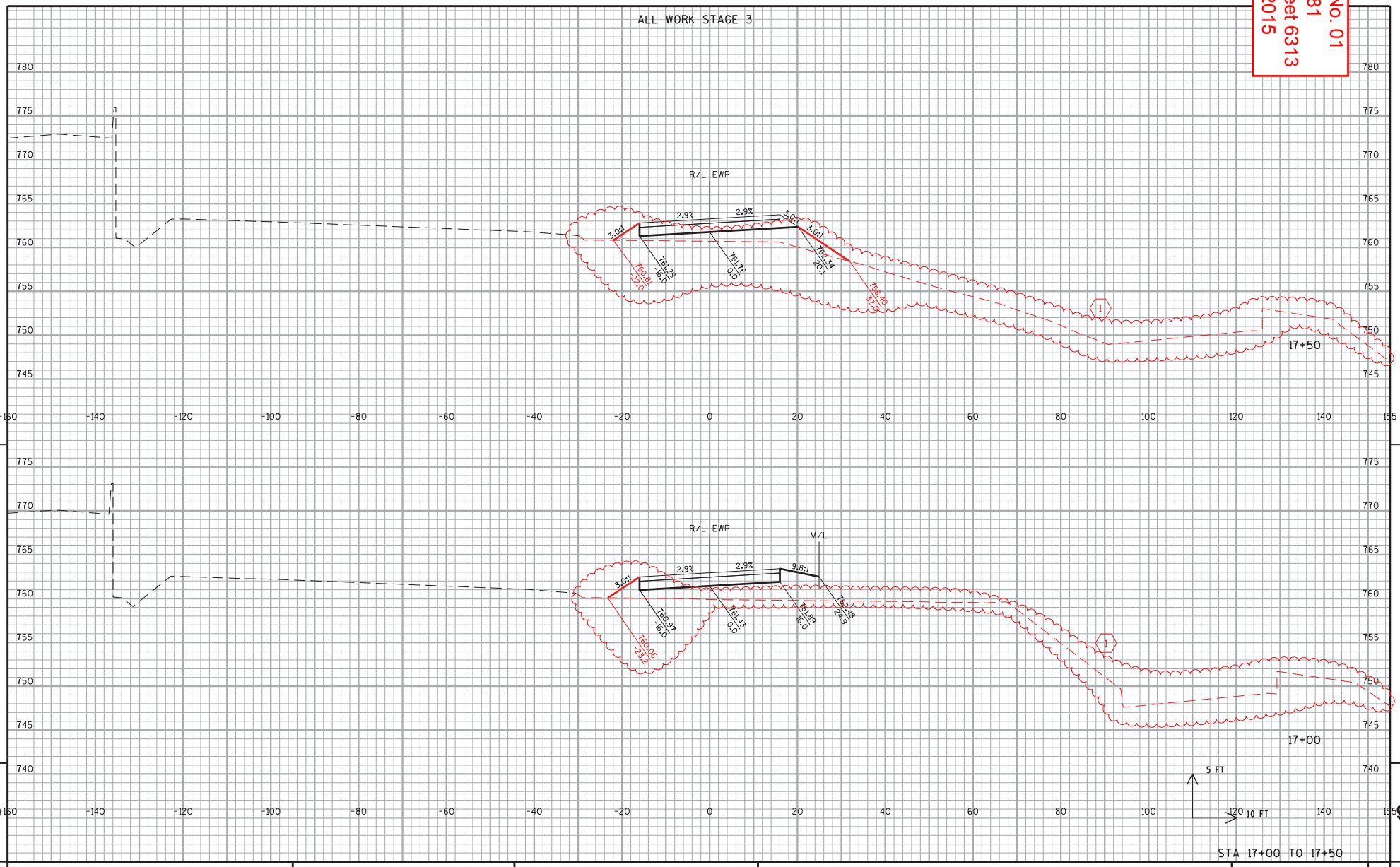

9 9

STA 16+00 TO 16+50

| PROJECT NO: 1060-33-81 | HWY: IH 94/IH 894/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP EWP | SHEET 6312 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090611_xs_EWP.dgn PLOT DATE : 11-AUG-2015 14:10 PLOT BY : mscgz1 PLOT NAME : 090611_xs_EWP4 PLOT SCALE : 20:1

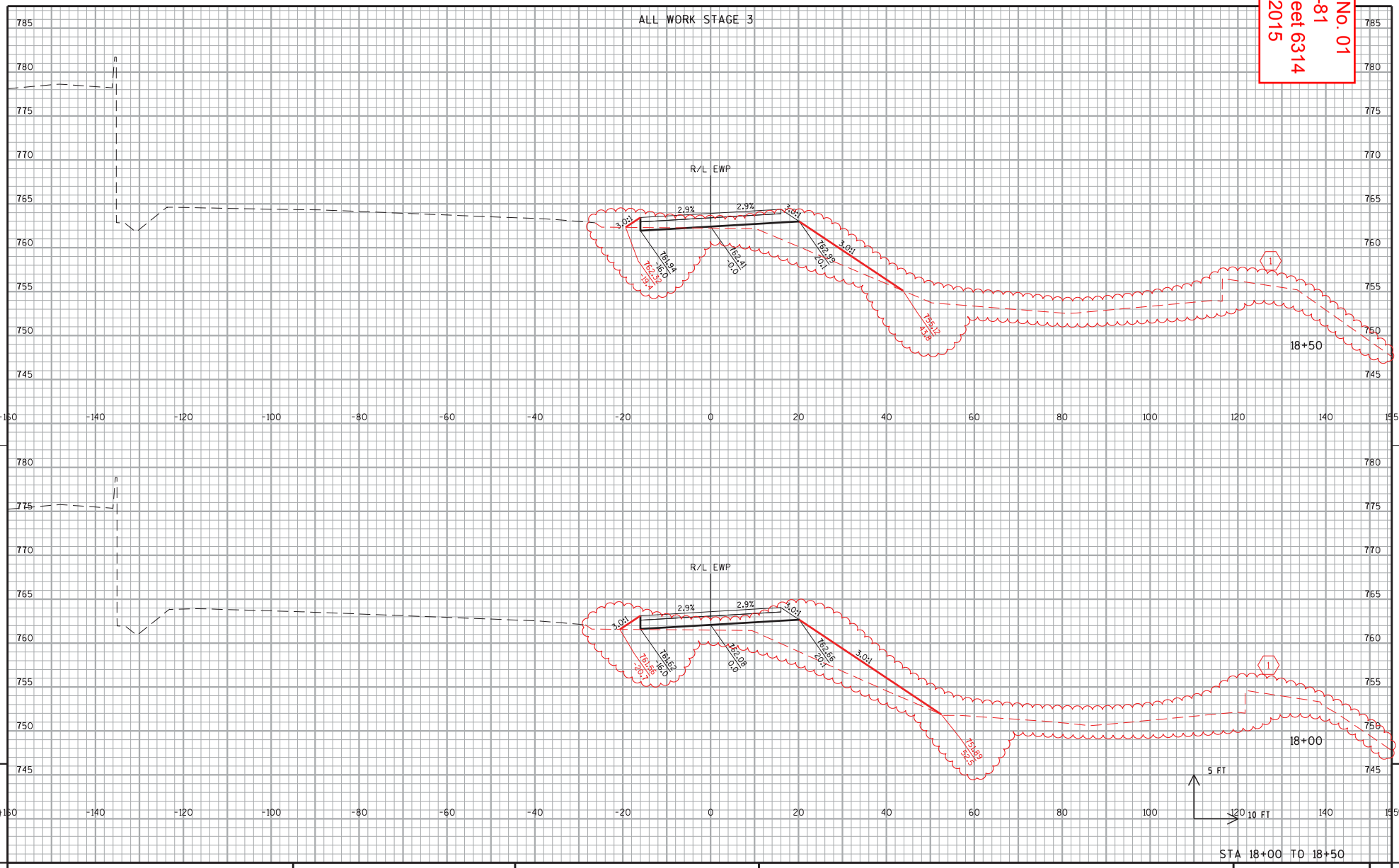
Addendum No. 01
ID 1060-33-81
Revised Sheet 6313
August 17, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 94/IH 894/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP EWP | SHEET 6313 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090611_xs_EWP.dgn PLOT DATE : 11-AUG-2015 14:10 PLOT BY : mscgz1 PLOT NAME : 090611_xs_EWP5 PLOT SCALE : 20:1

Addendum No. 01
ID 1060-33-81
Revised Sheet 6314
August 17, 2015

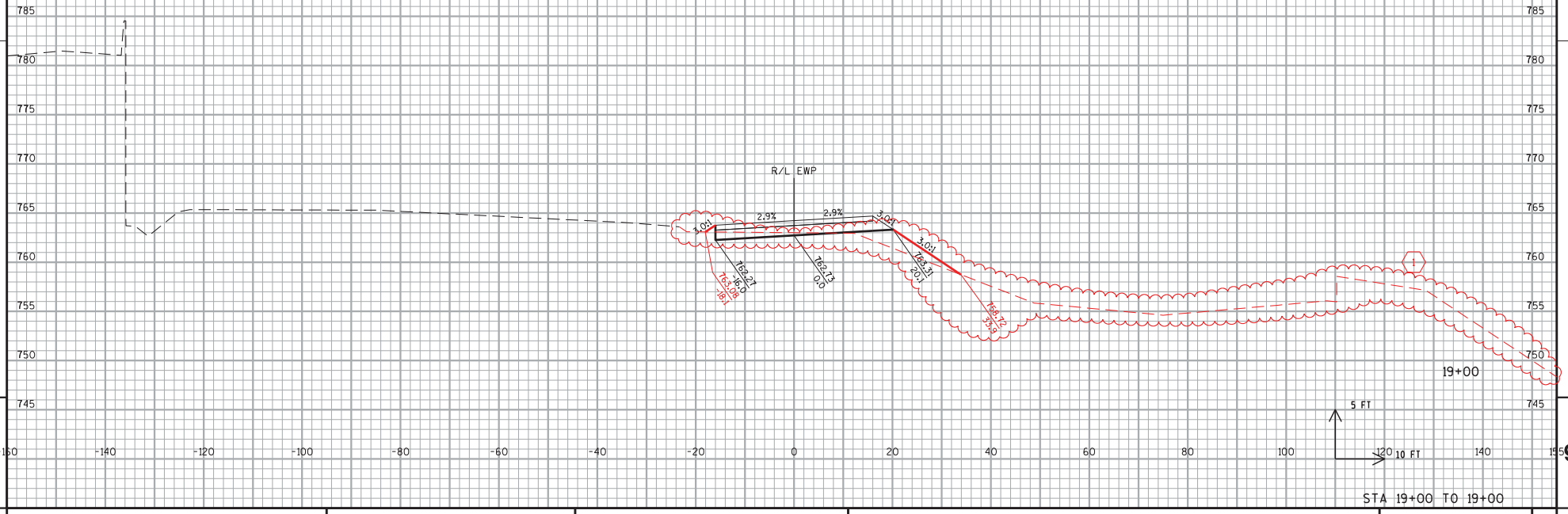



| PROJECT NO: 1060-33-81 | HWY: IH 94/IH 894/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP EWP | SHEET 6314 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090611_xs_EWP.dgn PLOT DATE : 11-AUG-2015 14:10 PLOT BY : mscgz1 PLOT NAME : 090611_xs_EWP6 PLOT SCALE : 20:1

ALL WORK STAGE 3

Addendum No. 01
ID 1060-33-81
Revised Sheet 6315
August 17, 2015



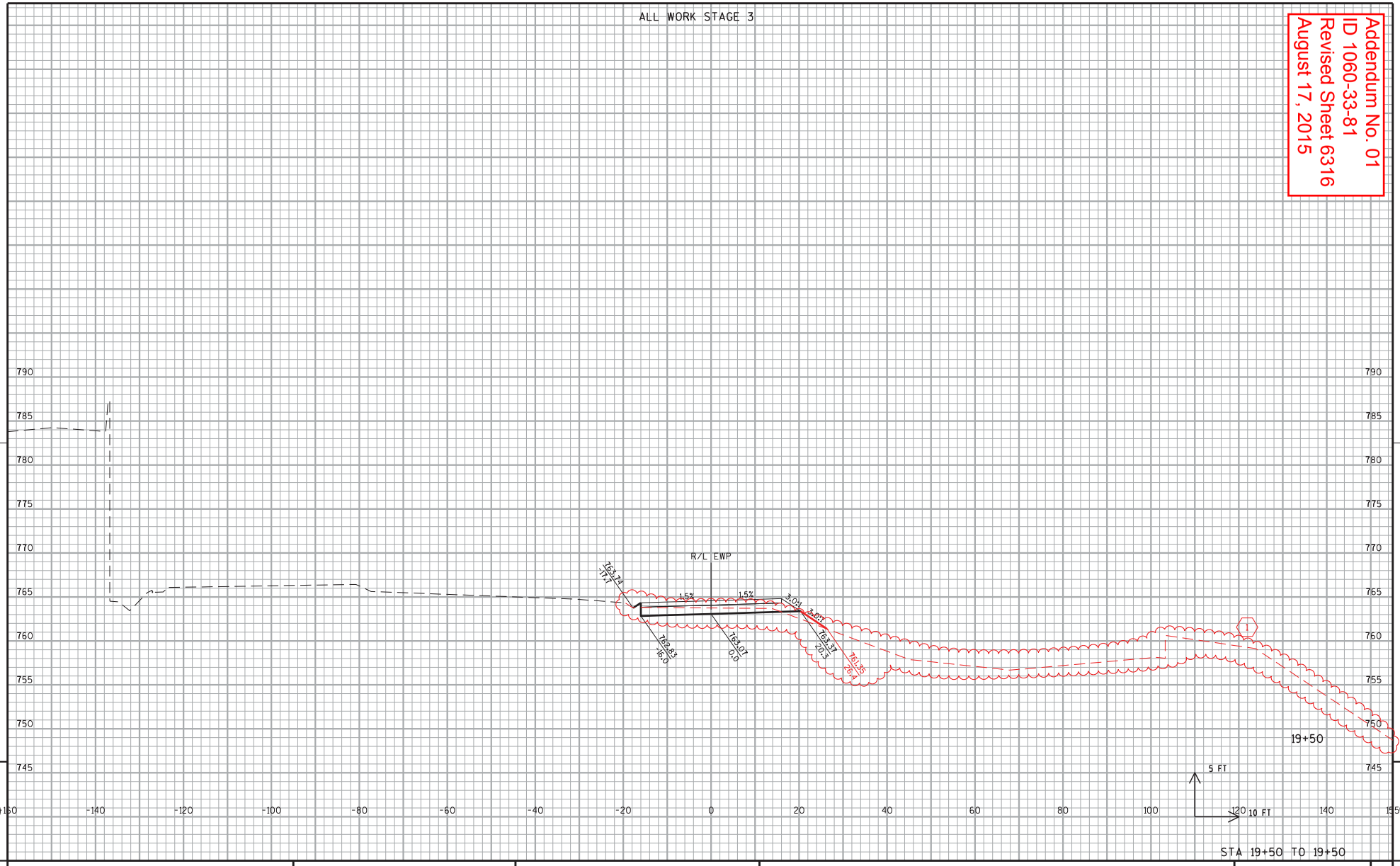

STA 19+00 TO 19+00

| PROJECT NO: 1060-33-81 | HWY: IH 94/IH 894/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP EWP | SHEET 6315 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090611_xs_EWP.dgn PLOT DATE : 11-AUG-2015 14:10 PLOT BY : mscgz1 PLOT NAME : 090611_xs_EWP7 PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

Addendum No. 01
ID 1060-33-81
Revised Sheet 6316
August 17, 2015



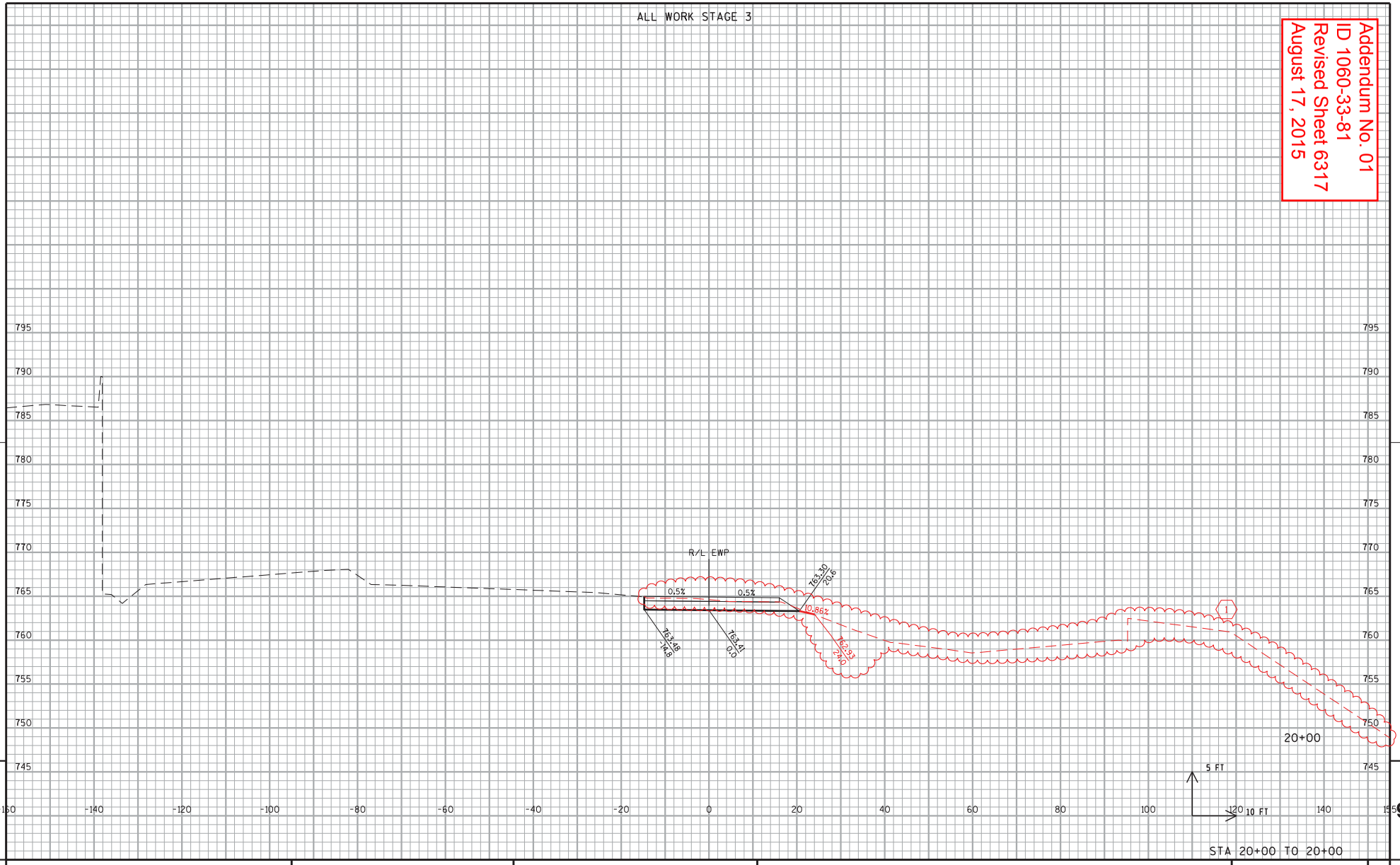

STA 19+50 TO 19+50

| PROJECT NO: 1060-33-81 | HWY: IH 94/IH 894/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP EWP | SHEET 6316 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090611_xs_EWP.dgn PLOT DATE : 11-AUG-2015 14:10 PLOT BY : mscgzl PLOT NAME : 090611_xs_EWP8 PLOT SCALE : 20:1

ALL WORK STAGE 3

Addendum No. 01
ID 1060-33-81
Revised Sheet 6317
August 17, 2015



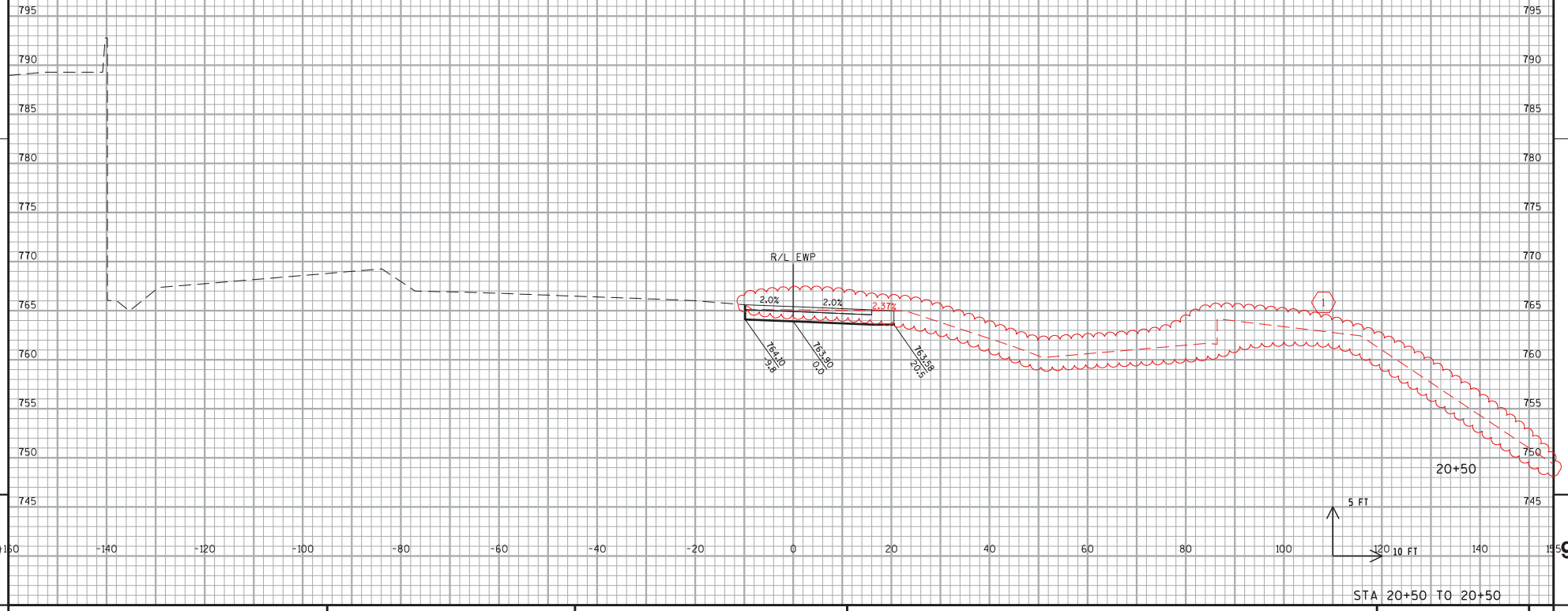

STA 20+00 TO 20+00

| PROJECT NO: 1060-33-81 | HWY: IH 94/IH 894/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP EWP | SHEET 6317 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090611_xs_EWP.dgn PLOT DATE : 11-AUG-2015 14:10 PLOT BY : mscgz1 PLOT NAME : 090611_xs_EWP9 PLOT SCALE : 20:1

ALL WORK STAGE 3

Addendum No. 01
ID 1060-33-81
Revised Sheet 6318
August 17, 2015




STA 20+50 TO 20+50

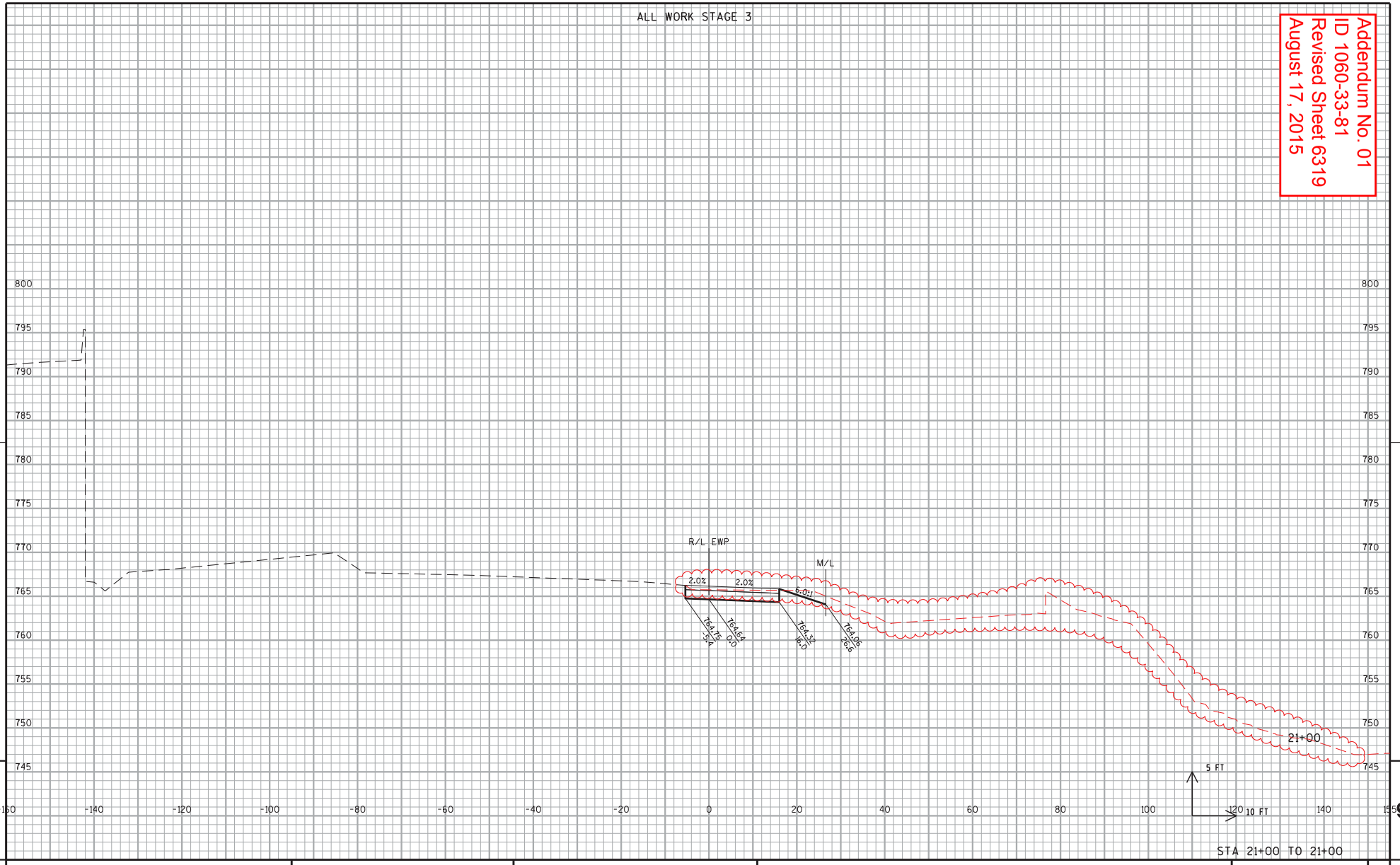
| PROJECT NO: 1060-33-81 | HWY: IH 94/IH 894/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP EWP | SHEET 6318 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090611_xs_EWP.dgn PLOT DATE : 11-AUG-2015 14:10 PLOT BY : mscgz1 PLOT NAME : 090611_xs_EWP10 PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

ALL WORK STAGE 3

Addendum No. 01
ID 1060-33-81
Revised Sheet 6319
August 17, 2015

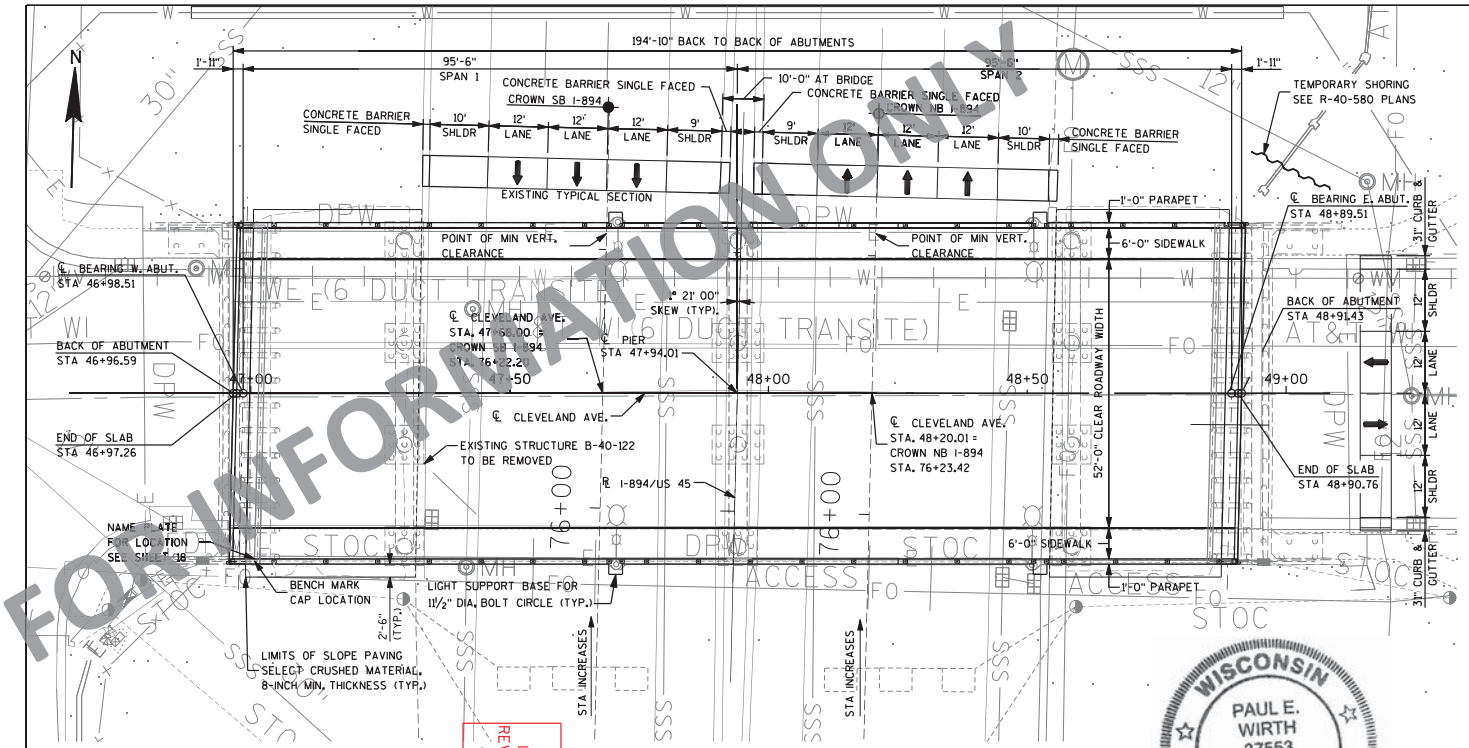



STA 21+00 TO 21+00

| PROJECT NO: 1060-33-81 | HWY: IH 94/IH 894/USH 45 | COUNTY: MILWAUKEE | CROSS SECTIONS: RAMP EWP | SHEET 6319 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090611_xs_EWP.dgn PLOT DATE : 11-AUG-2015 14:10 PLOT BY : mscgz1 PLOT NAME : 090611_xs_EWP11 PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

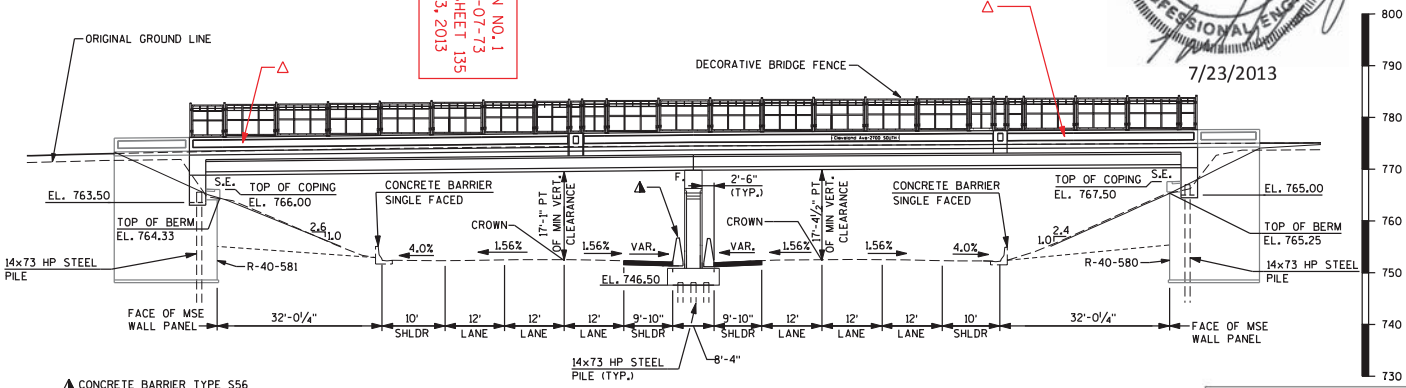



FOR INFORMATION ONLY

REVSION NO.1
ID 1090-07-73
REVISED SHEET 135
JULY 23, 2013

## PLAN

2 SPAN - 36W" PRESTRESSED GIRDRERS




⚠ CONCRETE BARRIER TYPE S56

## ELEVATION

NORMAL TO I-894
(LOOKING NORTH)

WISCONSIN
PAUL E. WIRTH
37553
MILWAUKEE, WI
PROFESSIONAL ENGINEER
7/23/2013

## DESIGN DATA

LIVE LOAD
DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: RF=1.12
OPERATING RATING FACTOR: RF=1.59
WISCONSIN STANDARD PERMIT VEHICLE(WIS-SPV) = 250 KIPS

THE STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 PSF.

ULTIMATE DESIGN STRESSES:
CONCRETE MASONRY SLAB: f'c = 4,000 psi ALL OTHER: f'c = 4,000 psi
BAR STEEL REINFORCEMENT, GRADE 60 ——— fy = 60,000 psi
36W" PRESTRESSED GIRDERS, CONCRETE MASONRY ——— f'c = 9,250 psi
STRANDS - 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF 270,000 psi
STRUCTURAL CARBON STEEL ASTM A709 GRADE 36 ——— fy = 36,000 psi
HIGH STRENGTH STRUCTURAL STEEL ASTM A709 GRADE 50 ——— fy = 50,000 psi

## FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON 14x73 HP STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 230 TONS* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED AT 95'-0" LONG.

PIER TO BE SUPPORTED ON 14x73 HP STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 200 TONS* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED AT 75'-0" LONG.

*THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

## LIST OF DRAWINGS


1. GENERAL PLAN
2. CROSS SECTION
3. GENERAL NOTES AND QUANTITIES
4. SUBSURFACE EXPLORATION
5. WEST ABUTMENT
6. WEST ABUTMENT DETAILS
7. EAST ABUTMENT
8. EAST ABUTMENT DETAILS
9. ALTERNATE CONSTRUCTION JOINT
10. PIER
11. PIER DETAILS 1
12. PIER DETAILS 2
13. 36W" PRESTRESSED GIRDER DETAILS 1
14. 36W" PRESTRESSED GIRDER DETAILS 2
15. FRAMING PLAN
16. STEEL DIAPHRAGMS
17. SUPERSTRUCTURE
18. SUPERSTRUCTURE DETAILS 1
19. SUPERSTRUCTURE DETAILS 2
20. SUPERSTRUCTURE DETAILS 3
21. SUPERSTRUCTURE DETAILS 4
22. LIGHT SUPPORT DETAILS
23. DECORATIVE BRIDGE FENCE
24. DECORATIVE BRIDGE FENCE DETAILS 1
25. DECORATIVE BRIDGE FENCE DETAILS 2
26. DECORATIVE BRIDGE FENCE DETAILS 3
27. AESTHETIC DETAILS


## TRAFFIC VOLUME

IH 894
ADT = 150,180 (2012)
ADT = 160,000 (2032)
DESIGN SPEED = 60 MPH

CLEVELAND AVE
ADT = 10,396 (2012)
DESIGN SPEED = 40 MPH

BUREAU OF STRUCTURES CONTACT;
WILLIAM DREHER (608-266-8489)

CONSULTANT CONTACT;
PAUL WIRTH (262-901-2500)

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| △ | 7/23/13 | Parapet Recess Revision | PEW |

Plan Sheet Accepted By WISDOT
BUREAU OF STRUCTURES

STATE PROJECT NUMBER
1090-07-73

Addendum No. 01
ID 1060-33-81
Added Sheet 6680A
August 17, 2015

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED _____ _____
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-40-884

CLEVELAND AVENUE OVER IH 894

COUNTY MILWAUKEE | ~~TOWN/CITY/VILLAGE~~ WEST ALLIS

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

| DESIGNED BY | PEW | DESIGN CK'D. | RDW | DRAWN BY | JRM | PLANS CK'D. | RDW |
|---|---|---|---|---|---|---|---|

GENERAL PLAN

SHEET 1 OF 27

6680A

8

8

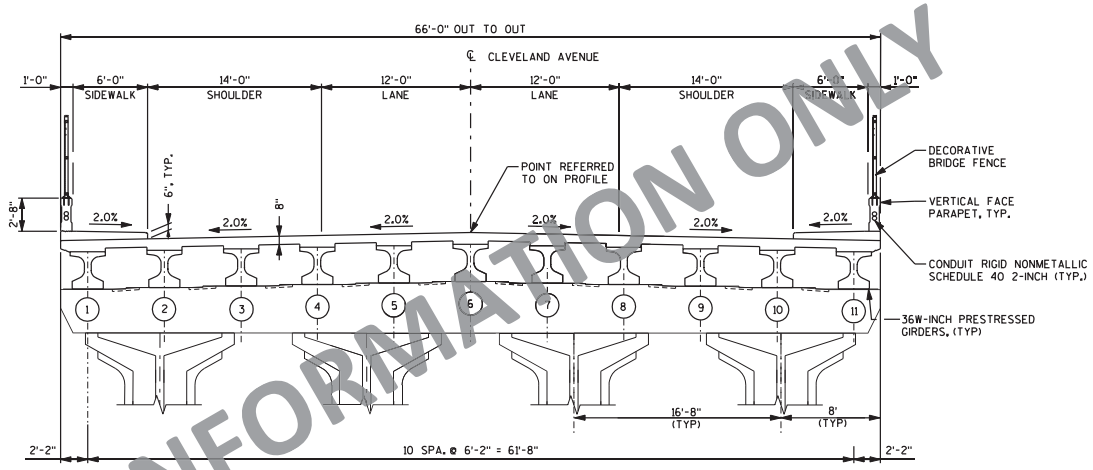
Pdf_bw_HS.plt
PEI_TextSub.tbl

FILE NAME : p:\milwaukee\projects\wisdot\21152.022\cleveland\cadd\sheets\08_884_0101_gp.dgn PLOT DATE : 7/23/2013 11:19:50 AM PLOT BY : Paul Wirth (Rdwy_Wis) PLOT NAME : PLOT SCALE : 24.0000 sf / IN.

ISS
BR0002

FOR INFORMATION ONLY

| STATE PROJECT NUMBER |
|---|
| 1090-07-73 |



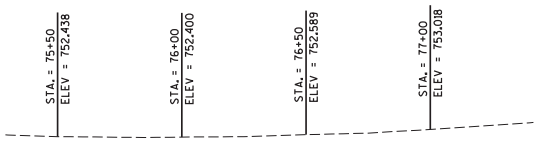

PROPOSED BRIDGE CROSS SECTION

(LOOKING EAST)



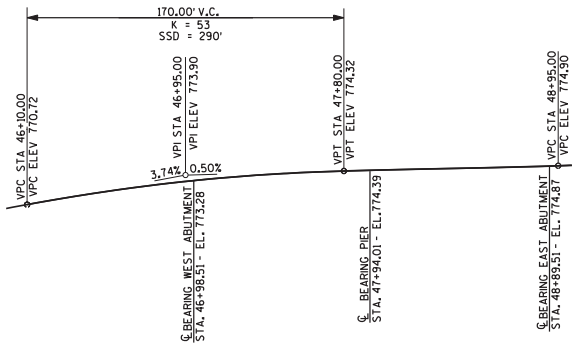

EXISTING PROFILE GRADE LINE - IH 894 SB

(ALONG CROWN STATION INCREASE TO NORTH)




EXISTING PROFILE GRADE LINE - IH 894 NB

(ALONG CROWN STATION INCREASE TO NORTH)




PROPOSED PROFILE GRADE LINE - CLEVELAND AVE.

Addendum No. 01
ID 1060-33-81
Added Sheet 6680B
August 17, 2015

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-884

| DRAWN BY | JRM | PLANS CK'D. | RDW |
|---|---|---|---|

CROSS SECTION

SHEET 2 OF 27

6680B

8

8

Pdf_Dw_HS.plt
PEI_TextSub.tbl

FILE NAME : p:\milwaukee\projects\wisdot\21152.022\cleveland\cadd\sheets\08_884_0201_qty.dgn PLOT DATE : 2/6/2013 3:24:59 PM PLOT BY : Paul Wirth (Rdwy_Wis) PLOT NAME : PLOT SCALE : 10.0008 sf / IN.

FILE=
SCALE =

| STATE PROJECT NUMBER |
|---|
| 1090-07-73 |

## TOTAL ESTIMATED QUANTITIES

| ITEM NO. | BID ITEM | UNIT | WEST ABUTMENT | PIER | EAST ABUTMENT | SUPER | TOTAL |
|---|---|---|---|---|---|---|---|
| 203.0200 | REMOVE OLD STRUCTURE (STA. 47+94.01) | LS | ——— | ——— | ——— | ——— | 1 |
| 203.0225.S | DEBRIS CONTAINMENT STRUCTURE B-40-884 | LS | ——— | ——— | ——— | ——— | 1 |
| 204.0175 | REMOVING CONCRETE SLOPE PAVING | SY | 285 | ——— | 285 | ——— | 570 |
| 206.1000 | EXCAVATION FOR STRUCTURES BRIDGES (B-40-884) | LS | ——— | ——— | ——— | ——— | 1 |
| 502.0100 | CONCRETE MASONRY BRIDGES | CY | 43 | 188 | 43 | 535 | 809 |
| 502.3200 | PROTECTIVE SURFACE TREATMENT | SY | ——— | ——— | ——— | 1450 | 1450 |
| 503.0137 | PRESTRESSED GIRDER TYPE I 36W-INCH | LF | ——— | ——— | ——— | 2110 | 2110 |
| 505.0605 | BAR STEEL REINFORCEMENT HS COATED BRIDGES | LB | 3590 | 40260 | 3590 | 109860 | 157300 |
| 506.2605 | BEARING PADS ELASTOMERIC NON-LAMINATED | EACH | 11 | 22 | 11 | ——— | 44 |
| 506.4000 | STEEL DIAPHRAGMS (B-40-884) | EACH | ——— | ——— | ——— | 40 | 40 |
| 516.0500 | RUBBERIZED MEMBRANE WATERPROOFING | SY | 12 | ——— | 12 | ——— | 24 |
| 550.1140 | PILING STEEL HP 14-INCH X 73 | LF | 1045 | 2700 | 1045 | ——— | 4790 |
| 604.0400 | SLOPE PAVING CONCRETE | SY | 17 | ——— | 17 | ——— | 34 |
| 604.0600 | SLOPE PAVING SELECT CRUSHED MATERIAL | SY | 275 | ——— | 275 | ——— | 550 |
| 652.0225 | CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH | LF | ——— | ——— | ——— | 780 | 780 |
| 653.0222 | JUNCTION BOXES TYPE NJ-NJ | EACH | ——— | ——— | ——— | 4 | 4 |
| 657.6005.S | ANCHOR ASSEMBLIES LIGHT POLES ON STRUCTURES | EACH | ——— | ——— | ——— | 4 | 4 |
| SPV.0090.01 | FENCE DECORATIVE BRIDGE | LF | ——— | ——— | ——— | 390 | 390 |
| SPV.0165.04 | CONCRETE STAINING B-40-884 | SF | 370 | 2000 | 370 | 5560 | 8300 |
| | | | | | | | |
| | NON-BID ITEMS | | | | | | |
| | PREFORMED JOINT FILLER | SIZE | | | | | 3/4" |
| | NON-BITUMINOUS JOINT FILLER | SIZE | | | | | 3/4" |
| | CORK FILLER | SIZE | | | | | 3/4" |
| | NAME PLATE | EACH | | | | | 1 |
| | | | | | | | |

ALL ITEMS ARE CATERGORY 0020

FOR INFORMATION ONLY

## GENERAL NOTES

BENDING DIMENSIONS FOR REINFORCING BARS SHOWN ARE OUT-TO-OUT.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE REINFORCING BARS SHALL BE EPOXY COATED.

THE FIRST DIGIT OF A THREE DIGIT BAR MARK OR THE FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFY THE BAR SIZE.

THE UTILITY INFORMATION SHOWN ON THESE DRAWINGS CONCERNING THE TYPE AND LOCATION OF EXISTING UTILITY INSTALLATIONS IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR SHALL MAKE THE DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES NECESSARY TO AVOID DAMAGE.

INFORMATION ON THESE DRAWINGS RELATING TO THE EXISTING BRIDGE IS BASED UPON DRAWINGS AVAILABLE FROM THE WISCONSIN DEPARTMENT OF TRANSPORTATION. NO GUARANTY OR WARRANTY IS MADE THAT THE INFORMATION IS ALL INCLUSIVE OR COMPLETELY ACCURATE. THE CONTRACTOR SHALL MAKE THE DETERMINATION OF THE ACTUAL CONDITIONS TO BE ENCOUNTERED.

THIS STRUCTURE WILL REPLACE B-40-122 WHICH IS A FOUR-SPAN PRESTRESED CONCRETE GIRDER BRIDGE APPROXIMATELY 202'LONG AND 66'WIDE. SUPPORTED ON CONCRETE ABUTMENTS AND CONCRETE PIERS. THE CONTRACTOR SHALL REMOVE ALL ELEMENTS OF THE EXISTING BRIDGE THAT INTERFERE WITH THE CONSTRUCTION OF THE PROPOSED BRIDGE.

ALL STATIONS AND ELEVATIONS ARE IN FEET.

AT ABUTMENTS ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED AND PAID FOR UNDER STRUCTURE R-40-580 AND R-40-581.

ALL ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM NAVD88 (2007).

DRAWINGS SHALL NOT BE SCALED.

FILLER SHALL CONFORM TO THE REQUIREMENTS OF AASHTO DESIGNATION M153, TYPES I, II OR III; OR AASHTO DESIGNATION M213.

ALL CONTRACTORS EQUIPMENT MUST MAINTAIN THE MINIMUM OSHA CLEARANCE FROM ATC AND WE ENERGIES OVERHEAD FACILITIES AS DESCRIBED IN OSHA'S GUIDELINES FOR CLEARANCES. ALL CONTRACTORS SHOULD INCOPORATE ANY ADDITIONAL COSTS ASSOCIATED WITH WORKING AROUND EXISTING ATC AND WE ENERGIES FACILITIES INTO THEIR BID, AS ATC AND WE ENERGIES BELIEVES THEY DO NOT IMPOSE ANY DIRECT CONFLICTS WITH THE SCOPE OF THIS PROJECT.

FILL/EXCAVATE TO BOTTOM OF THE MSE WALLS AND PIER ELEVATION BEFORE DRIVING PILING.

THE EXISTING GROUND LINE SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION AT THE PIER.

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE PRESTRESSED GIRDER DETAILS SHEET.

PROVIDE A ¾" CHAMFER OR RADIUS ON ALL EXPOSED CONCRETE EDGES.

THE ELASTOMERIC BEARING PADS NON-LAMINATED NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.

PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED TO THE TOP OF THE DECK, TOP OF PARAPETS, TOP OF SIDEWALK, AND FACE OF CURBS.

PILE SPLICES SHALL BE MADE BY A CERTIFIED WELDER.

THE CONTRACTOR MUST COORDINATE THE REMOVAL OF EXISTING STRUCTURE B-40-122 AND CONSTRUCTION OF B-40-884 ABUTMENTS WITH RETAINING WALLS R-40-580 AND R-40-581.

WISCONSIN
PAUL E. WIRTH
37553
MILWAUKEE, WI
PROFESSIONAL ENGINEER

3/27/2013

William C. Dreher KAR 03/28/13

Addendum No. 01
ID 1060-33-81
Added Sheet 6680C
August 17, 2015

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 1 | 3/27/13 | QUANTITY REVISION | PEW |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION
STRUCTURE B-40-884R

DRAWN BY JRM | PLANS CK'D. RDW

GENERAL NOTES & QUANTITIES

SHEET 3 OF 27

6680C

8

8

Pdf_Dw_HS.plt
PEI_TEXTSUB.TBL

FILE NAME : P:\Milwaukee\Projects\WisDOT\21152.022\Cleveland\CADD\Sheets\08_884_0202_qty.dgn PLOT DATE : 3/27/2013 10:49:17 AM PLOT BY : Kurt Feuerstein (Rdwy_Wis) PLOT NAME : PLOT SCALE : 12.0000 sf / IN.

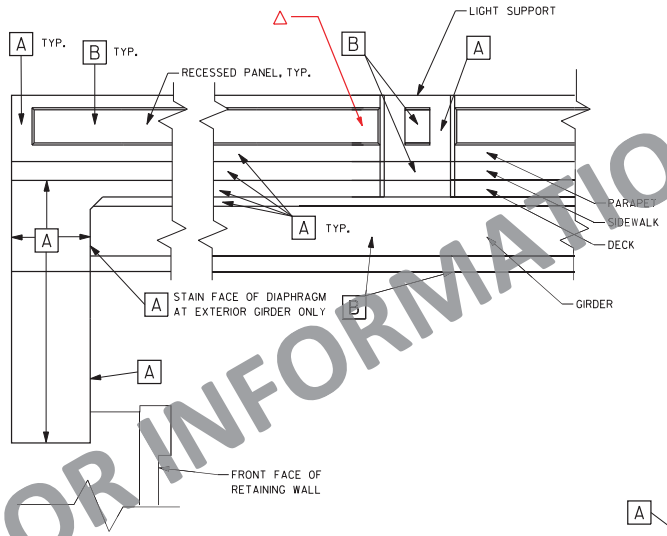
FILE= SCALE =

STATE PROJECT NUMBER
1090-07-73

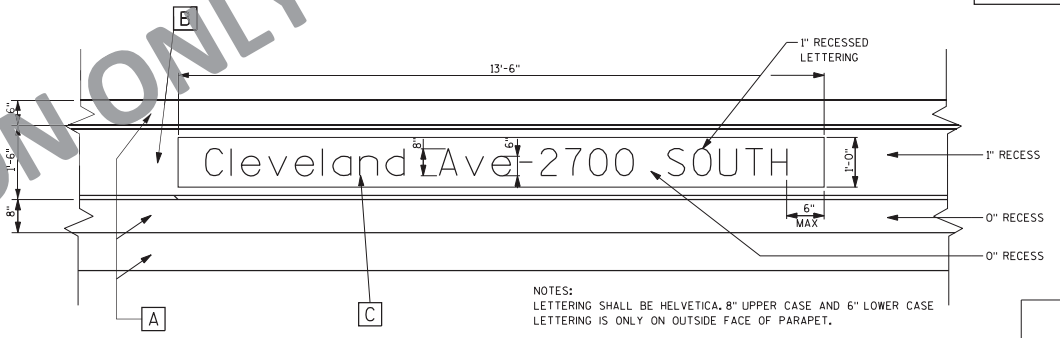
10900773-00031S

Addendum No. 01
ID 1060-33-81
Added Sheet 6680D
August 17, 2015

FOR INFORMATION ONLY




OUTSIDE ELEVATION OF PARAPET

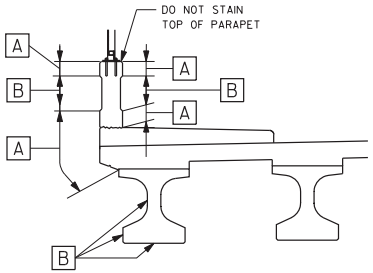



INDENTED TEXT
EXTERIOR FACE OF PARAPET ONLY

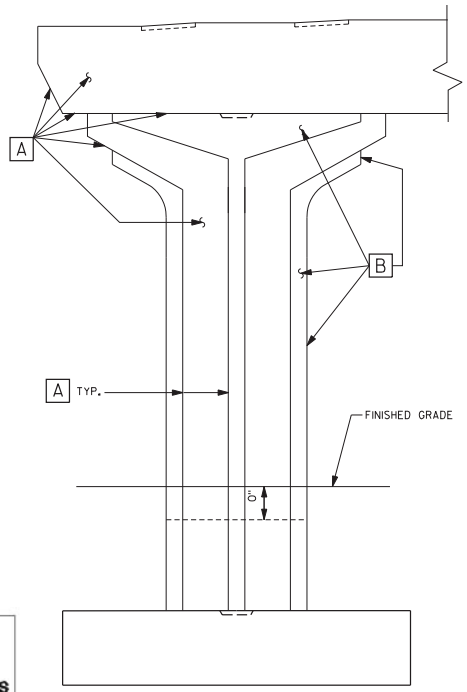
REVSION NO. 1
ID 1090-07-73
REVISED SHEET 161
JULY 23, 2013



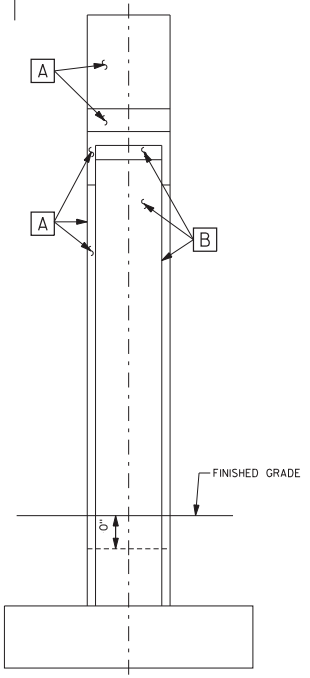

7/23/2013




ELEVATION OF DECK




ELEVATION OF PIER




ELEVATION OF PIER
LOOKING NORTH (FROM SOUTH END)

CONCRETE STAINING SCHEDULE

| MARK | COLOR | LOCATION | NOTES |
|---|---|---|---|
| A | BASE COLOR | PARAPETS | BOTH SIDES, EXCEPT AS NOTED FOR ACCENT COLORS |
| | | SIDEWALKS | FASCIA & EXPOSED UNDERSIDE |
| | | DECK | FASCIA & EXPOSED UNDERSIDE TO EXTERIOR GIRDER FLANGE |
| | | ABUTMENT | FRONT FACE FROM TOP OF ABUTMENT TO 6" BELOW TOP OF RETAINING WALL COPING |
| | | PIERS | SIDES AND BOTTOM OF CAP BEAM, AND COLUMNS TO ~~1'-0" BELOW~~ FINISHED GRADE EXCEPT AS NOTED FOR ACCENT COLORS |
| B | ACCENT COLOR #1 | PIERS, GIRDERS, PARAPETS | REVEALS ON COLUMNS, EXTERIOR FACE AND UNDERSIDE OF EXTERIOR GIRDERS, REVEALS ON PARAPETS |
| C | ACCENT COLOR #3 | PARAPETS | LETTERING AT ROADWAY NAME |

THE FINAL COLOR OF THE CONCRETE FOLLOWING APPLICATION OF THE STAIN SYSTEM SHALL MATCH THE SHERWIN-WILLIAMS STANDARD COLOR SYSTEM LISTED.

| | | |
|---|---|---|
| BASE COLOR: | WHOLE WHEAT - SW 6121, FN 122 | FEDERAL COLOR - 33564 |
| ACCENT COLOR #1 | BAGUETTE - SW 6123, FN 124 | FEDERAL COLOR - 33448 |
| ~~ACCENT COLOR #2~~ | ~~DENIM - SW 6523~~ | |
| ACCENT COLOR #3 | BLACK - FEDERAL COLOR 37038 | |

Plan Sheet Accepted By WISDOT
BUREAU OF STRUCTURES

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| △ | 7/23/13 | Parapet Recess Revision | PEW |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION
STRUCTURE B-40-884

DRAWN BY JRM | PLANS CK'D. RDW

AESTHETIC DETAILS

SHEET 27 OF 27

6680D

8

8

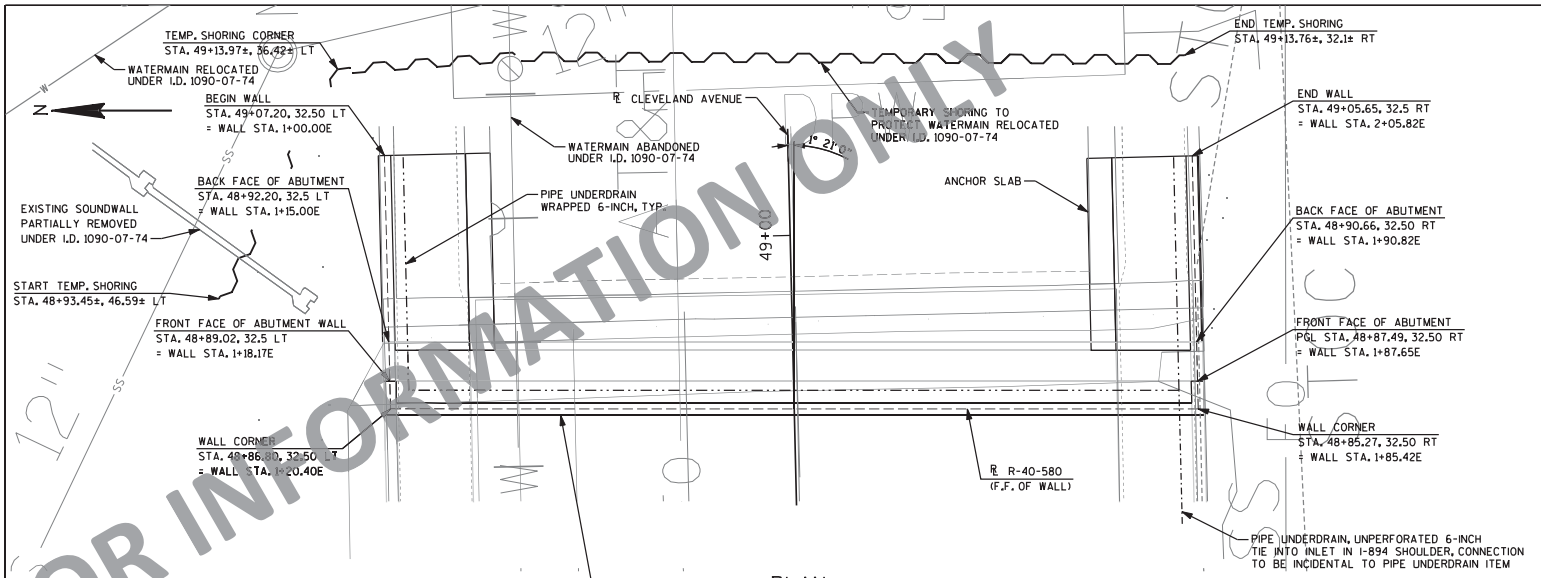
Pdf_Dw_HS.plt
PEI_TextSub.tbl

FILE NAME : p:\milwaukee\projects\wisdot\21152.022\cleveland\cadd\sheets\08_884_1002archdet.dgn PLOT DATE : 7/23/2013 11:20:33 AM PLOT BY : Paul Wirth (Rdwy_Wis) PLOT NAME : PLOT SCALE : 4.9999 sf / IN.

FILE= SCALE =

SS

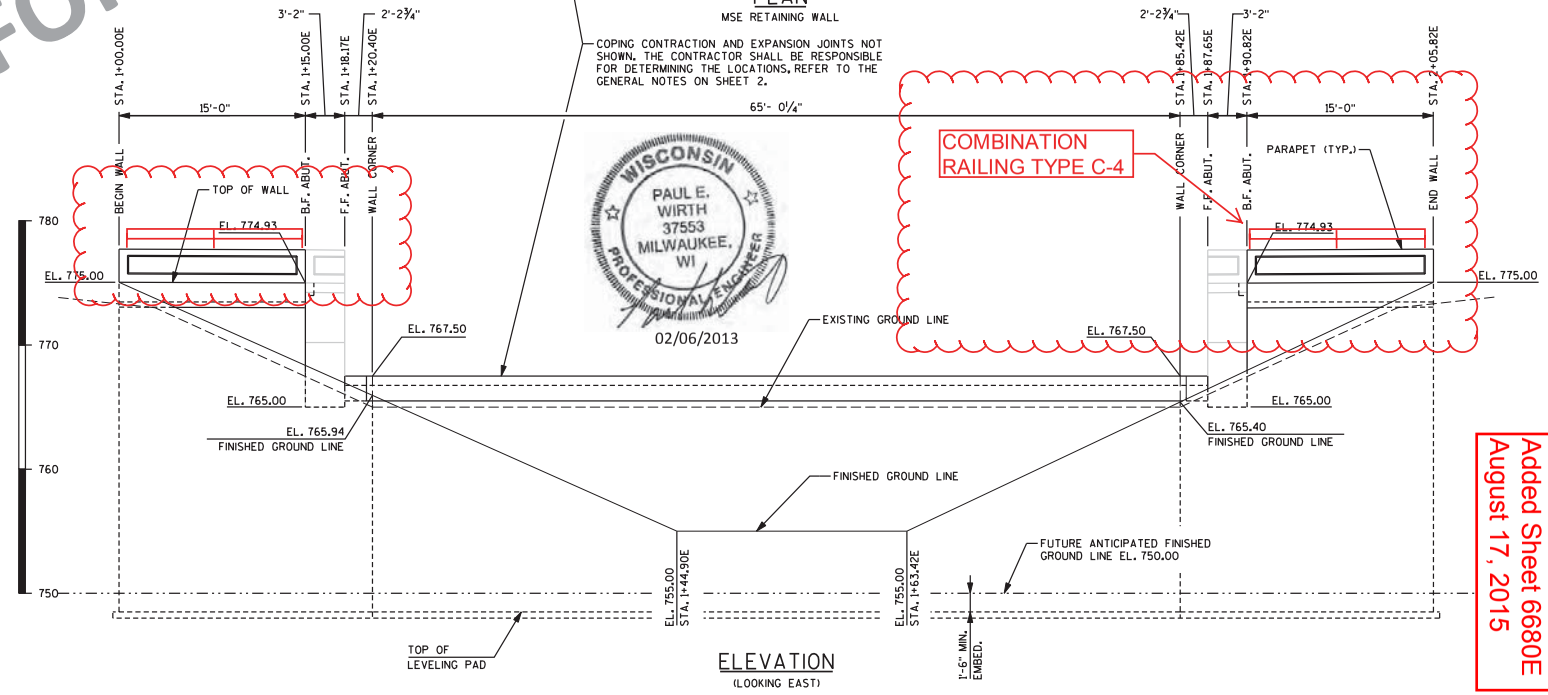
BR0002




## PLAN

MSE RETAINING WALL

COPING CONTRACTION AND EXPANSION JOINTS NOT SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE LOCATIONS, REFER TO THE GENERAL NOTES ON SHEET 2.




## ELEVATION

(LOOKING EAST)

WISCONSIN
PAUL E. WIRTH
37553
MILWAUKEE, WI
PROFESSIONAL ENGINEER
02/06/2013

FOR INFORMATION ONLY

STATE PROJECT NUMBER
1090-07-73

## DESIGN DATA

THE CONTRACTOR SHALL PROVIDE COMPLETE DESIGN, PLANS, DETAILS, SPECIFICATIONS, AND SHOP DRAWINGS FOR THE RETAINING WALLS IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE RETAINING WALL MANUFACTURER SHALL PROVIDE TECHNICAL ASSISTANCE TO THE CONTRACTOR DURING CONSTRUCTION. THE COST OF FURNISHING THESE ITEMS SHALL BE INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/OMP PILOT".

PLANS, ELEVATIONS AND DETAILS SHOWN ON THESE DRAWINGS ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS, HEIGHTS, AND DETAILS COMMON TO THE WALL SYSTEM SELECTED. THE CONTRACTOR SHALL VERIFY THAT THE WALL SYSTEM SELECTED WILL CONFORM TO THE REQUIRED ALIGNMENTS AND DETAILS.

THE RETAINING WALL IS TO BE DESIGNED USING THE ELEVATIONS GIVEN ON THIS SHEET.

THE RETAINING WALL DESIGN SHALL USE THE FUTURE ANTICIPATED FINISHED GROUND LINE ELEVATION TO DETERMINE THE MAXIMUM WALL HEIGHTS.

PROVIDE WALL CORNER DETAILS THAT WILL ALLOW FOR FUTURE EXTENSION OF THE RETAINING WALL PARALLEL TO THE ROADWAY.

DESIGN THE RETAINING WALL IN FRONT OF THE ABUTMENT BODY TO RESIST THE FORCE FROM ALL HORIZONTAL EARTH PRESSURE ACTING ON THE BACK OF THE ABUTMENT BELOW THE BEAM SEATS.

DESIGN THE RETAINING WALL FOR A LIVE LOAD SURCHARGE OF 240 PSF.

THE MAXIMUM VALUE OF THE ANGLE OF INTERNAL FRICTION OF THE WALL BACKFILL MATERIAL IN THE REINFORCED ZONE SHALL BE ASSUMED TO BE 30° WITHOUT CERTIFIED TEST VALUES.

ALLOWABLE WALL SYSTEMS:
WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD

ULTIMATE DESIGN STRESSES:
CONCRETE MASONRY
(PARAPET, SIDEWALK, ANCHOR SLAB AND COPING) f'c = 3,500 PSI
BAR STEEL REINFORCEMENT, GRADE 60 fy = 60,000 PSI

## LIST OF DRAWINGS


1. GENERAL PLAN
2. GENERAL NOTES AND QUANTITIES
3. SUBSURFACE EXPLORATION
4. WALL DETAILS
5. ANCHOR SLAB DETAILS
6. AESTHETIC WALL TREATMENT DETAILS


BUREAU OF STRUCTURES CONTACT:
WILLIAM DREHER (608) 266-8489

CONSULTANT CONTACT:
PAUL WIRTH (262) 901-2500

| NO. | DATE | REVISION | BY |
|---|---|---|---|

Addendum No. 01
ID 1060-33-81
Added Sheet 6680E
August 17, 2015

PATRICK ENGINEERING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher FOR 02/06/13
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE R-40-580

CLEVELAND AVENUE OVER IH 894

COUNTY MILWAUKEE | ~~TOWN/CITY/VILLAGE~~ WEST ALLIS

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

| DESIGNED BY | PEW | DESIGN CK'D. | RLD | DRAWN BY | JRM | PLANS CK'D. | RLD |
|---|---|---|---|---|---|---|---|

GENERAL PLAN

SHEET 1 OF 6

6680E

8

8

Pdf_bw_HS.plt
PEI_TextSub.tbl

| STATE PROJECT NUMBER |
|---|
| 1090-07-73 |

## TOTAL ESTIMATED QUANTITIES

| | ITEM NO. | BID ITEM | UNIT | TOTAL |
|---|---|---|---|---|
| | 206.3000 | EXCAVATION FOR STRUCTURES RETAINING WALLS (R-40-580) | LS | 1 |
| | 206.6000.S | TEMPORARY SHORING | SF | 2520 |
| | 210.0100 | BACKFILL STRUCTURE | CY | 100 |
| | 502.3200 | PROTECTIVE SURFACE TREATMENT | SY | 32 |
| ** | 504.0500 | CONCRETE MASONRY RETAINING WALLS | CY | 19 |
| ** | 505.0615 | BAR STEEL REINFORCEMENT HS COATED RETAINING WALLS | LB | 1,730 |
| | 612.0206 | PIPE UNDERDRAIN UNPERFORATED 6-INCH | LF | 40 |
| | 612.0406 | PIPE UNDERDRAIN WRAPPED 6-INCH | LF | 105 |
| | 652.0225 | CONDUIT RIGID NONMETALLIC SHCEDULE 40 2-INCH | LF | 72 |
| | SPV.0165.01 | WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/OMP PILOT | SF | 2,240 |
| | SPV.0165.02 | CONCRETE STAINING R-40-580 | SF | ~~970~~ |
| | | | | |
| | | NON-BID ITEM | | |
| | | PRE-FORMED JOINT FILLER | SIZE | ¾" |
| | | NON-BITUMINOUS JOINT SEALER | SIZE | ¾", 1" |
| | | CORK FILLER | SIZE | 1" |

ALL ITEMS ARE CATEGORY 0030

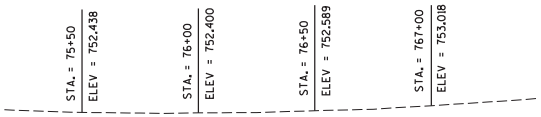
** QUANTITY INCLUDES ANCHOR SLAB AND PARAPET

## WALL EXTERNAL AND OVERALL STABILITY EVALUATION

| DIMENSIONS | | | | | |
|---|---|---|---|---|---|
| WALL HEIGHT (FEET)[1] | 26.6 | 19.0 | | | |
| EXPOSED WALL HEIGHT (FEET)[2] | 25.1 | 17.5 | | | |
| MINIMUM LENGTH OF REINFORCEMENT (FEET) | 26.0 | 27.0 | | | |
| WALL STATION | 1+00.00 | 1+53.00 | | | |
| BORING USED | C-06 | C-03 | | | |
| **CAPACITY TO DEMAND RATIO (CDR)** | | | | | |
| SLIDING (CDR > 1.0) | 1.01 | 1.03 | | | |
| ECCENTRICTY (CDR > 1.0) | 1.92 | 2.64 | | | |
| FACTORED BEARING RESISTANCE (PSF) | 9,300 | 9,300 | | | |
| BEARING RESISTANCE (CDR > 1.0) | 1.58 | 1.78 | | | |
| OVERALL STABILITY (CDR > 1.0) | 1.06 | 1.10 | | | |

NOTES:

1. THE WALL HEIGHT INCLUDES AN EMBEDMENT OF 1.5 FEET BELOW THE FUTURE ANTICIPATED GRADE LINE.
2. THE EXPOSED WALL HEIGHT IS BASED ON THE FUTURE ANTICIPATED GRADE LINE.
3. THE WALL STABILITY EVALUATION INCLUDED A SURCHRAGE LOAD THAT WAS EQUAL TO THE WEIGHT OF THE SOIL BEHIND THE ABUTMENT.

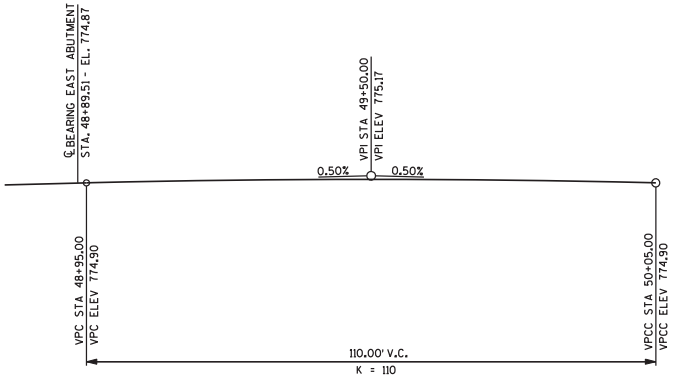



EXISTING PROFILE GRADE LINE - IH 894 NB

(ALONG CROWN STATION INCREASE TO NORTH)

## SOIL PARAMETERS

| SOIL DESCRIPTIONS & STRATUM LOCATIONS | FRICTION ANGLE (DEGREES) | COHESION (PSF) | UNIT WEIGHT (PCF) |
|---|---|---|---|
| GRANULAR BACKFILL WITHIN THE WALL IN THE WALL REINFORCING ZONE | 30 | 0 | 120 |
| FILL BEHIND THE REINFORCING ZONE | 29 | 0 | 130 |
| BORING C-3, STA. 49+06.09- LT 19.10, C-6, STA. 49+32.28- LT 50.54, C-7, 49+18.43- RT 43.61 | | | |
| FILL, SAND, GRAVEL AND CLAY, BROWN, MOIST. ELEVATION 773.9 FEET TO 767.9 FEET | 31 | 0 | 125 |
| CLAY AND TRACE SAND, HARD TO STIFF ELEVATION 767.9 FEET TO 756.9 FEET | 0 | 1500 | 125 |
| GRAY LEAN CLAY, TRACE GRAVEL AND SAND, HARD TO STIFF ELEVATION 756.9 FEET TO 740.9 FEET | 0 | 1500 | 130 |
| GRAY LEAN CLAY, TRACE SAND AND GRAVEL, VERY STIFF ELEVATION 740.9 FEET TO 725.9 FEET | 0 | 2750 | 130 |
| FILGRAY LEAN CLAY, SAND AND GRAVEL, DENSE ELEVATION 725.9 FEET TO 673.9 FEET | 0 | 5000 | 135 |




PROPOSED PROFILE GRADE LINE - CLEVELAND AVE.

## GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.

BEVEL EXPOSED EDGES OF CONCRETE ¾", UNLESS NOTED OTHERWISE.

APPLY PROTECTIVE SURFACE TREATMENT TO THE TOP OF THE CONCRETE PARAPETS, TOP OF SIDEWALKS, FACE OF CURBS AND TOP OF CURB FLANGES.

THE 'E' STATION LINE SIGNIFIES THE WALL ℄ LINE STATIONING ALONG THE FRONT FACE OF R-40-580.

ALL WALL STATIONING AND OFFSETS ARE GIVEN AT THE FRONT FACE OF WALL.

COORDINATE CONSTRUCTION OF THE WALL WITH THE EAST ABUTMENT CONSTRUCTION FOR BRIDGE B-40-884.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE LOCATIONS OF ALL EXPANSION AND CONTRACTION JOINTS. LOCATE THE JOINTS TO COINCIDE WITH THE VERTICAL MSE WALL PANEL JOINTS.

THE PLAN QUANTITY FOR THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/OMP PILOT" IS BASED ON A WALL HEIGHT MEASURED FROM THE TOP OF THE WALL TO THE TOP OF THE LEVELING PAD.

THE QUANTITY OF CONCRETE MASONRY FOR THE CAST-IN-PLACE ANCHOR SLAB, SIDEWALK AND PARAPET IS PAID FOR UNDER THE BID ITEM "CONCRETE MASONRY RETAINING WALLS".

THE QUANTITIES AND REINFORCEMENT DETAILS ARE BASED ON AN ASSUMED WALL PANEL THICKNESS OF 5½" AND A 5" PANEL EMBEDMENT. FOR PANEL THICKNESS AND PANEL EMBEDMENT DIFFERENT THAN THESE VALUES, THE CONTRACTOR SHALL VERIFY REINFORCEMENT BAR DETAILS AND QUANTITIES AND WILL BE RESPONSIBLE FOR ANY QUANTITY VARIATIONS.

FILLER SHALL CONFORM TO THE REQUIREMENTS OF AASHTO DESIGNATION M153, TYPES I, II OR III OR M213.

ALL CONTRACTORS EQUIPEMENT MUST MAINTAIN THE MINIMUM OSHA CLEARANCE FROM ATC AND WE ENERGIES OVERHEAD FACILITIES AS DESCRIBED IN OSHA'S GUIDELINES FOR CLEARANCES. ALL CONTRACTORS SHOULD INCORPORATE ANY ADDITIONAL COSTS ASSOCIATED WITH WORKING AROUND EXISTING ATC AND WE ENERGIES FACILITIES INTO THEIR BID. AS ATC AND WE ENERGIES BELIEVE THEY DO NOT IMPOSE ANY DIRECT CONFLICTS WITH THE SCOPE OF THIS PROJECT.

FOR INFORMATION ONLY

Addendum No. 01
ID 1060-33-81
Added Sheet 6680F
August 17, 2015

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-580

DRAWN BY JRM | PLANS CK'D. RLD

GENERAL NOTES & QUANTITIES

SHEET 2 OF 6

6680F

8

8

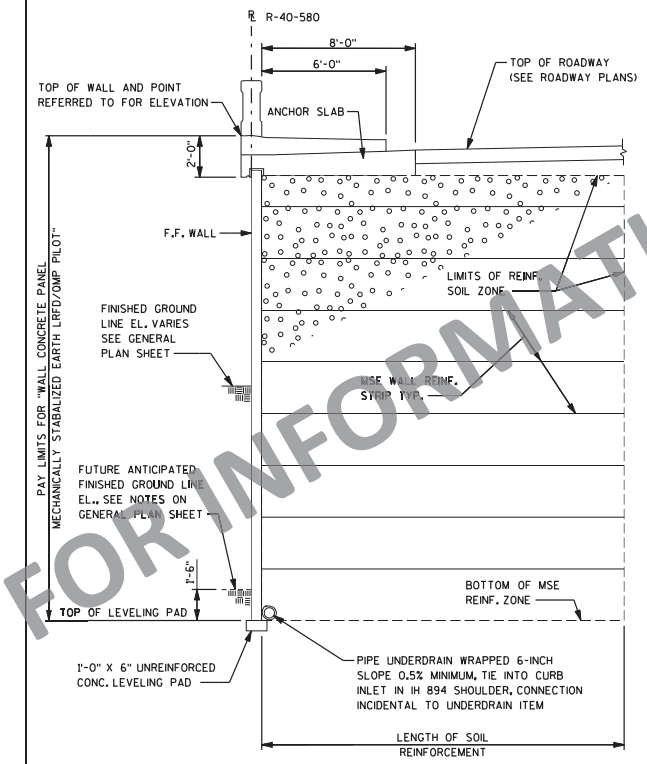
Pdf_Dw_HS.plt
PEI_TextSub.tbl

FILE = SCALE =

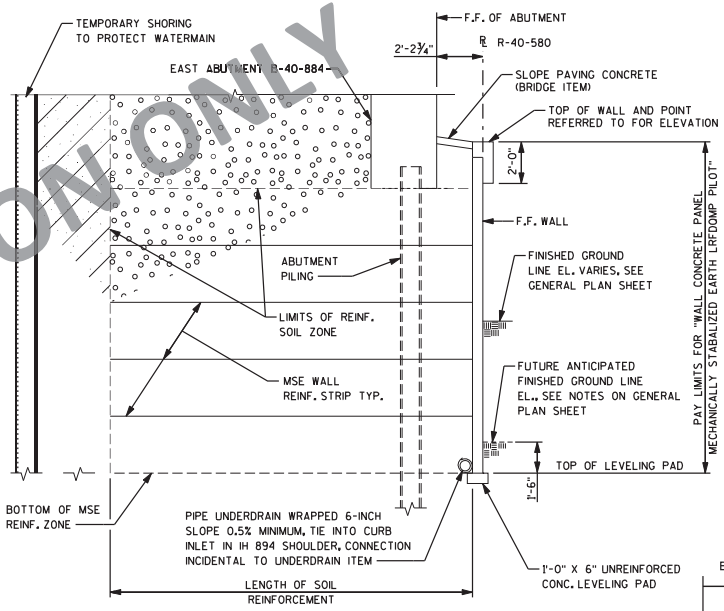
FILE NAME : p:\milwaukee\projects\wisdot\21152.022\cleveland\cadd\sheets\08_580_0201qty.dgn PLOT DATE : 2/6/2013 10:10:10 AM PLOT BY : Paul Wirth (Rdwy_Wis) PLOT NAME : PLOT SCALE : 24.0000 sf / IN.

STATE PROJECT NUMBER

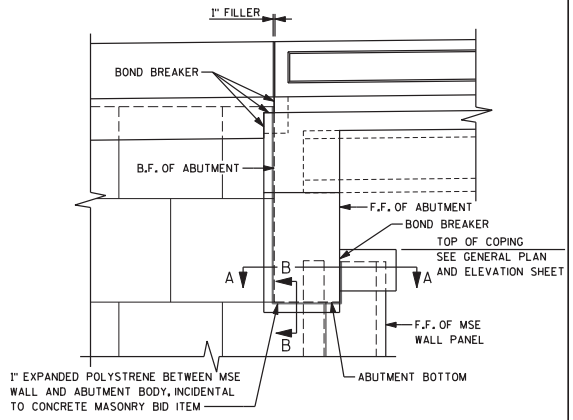
1090-07-73



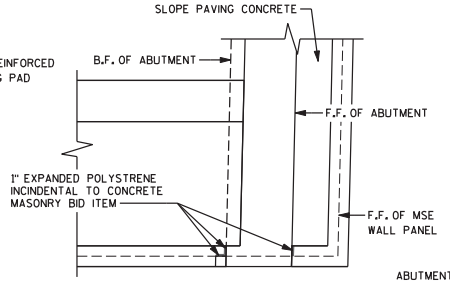

SECTION THRU RETAINING WALL



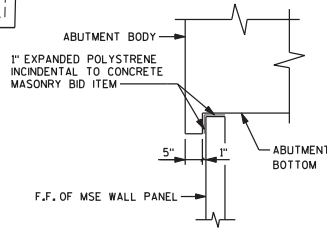

SECTION THRU RETAINING WALL AT ABUTMENT



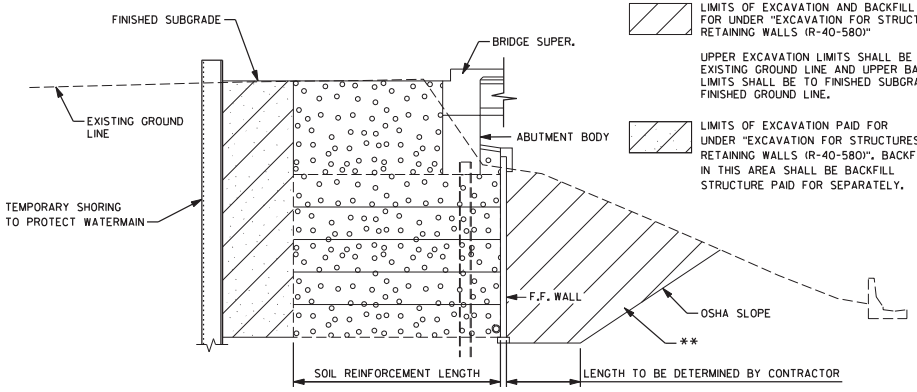

ABUTMENT/MSE WALL INTERFACE




SECTION A-A




SECTION B-B




SECTION PARALLEL WITH CLEVELAND AVE

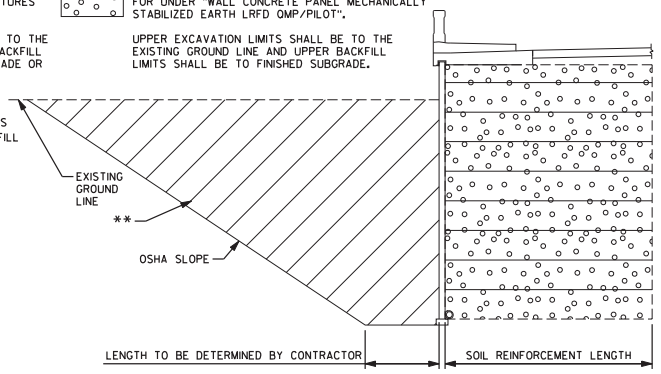
LIMITS OF EXCAVATION AND BACKFILL PAID FOR UNDER "EXCAVATION FOR STRUCTURES RETAINING WALLS (R-40-580)"

UPPER EXCAVATION LIMITS SHALL BE TO THE EXISTING GROUND LINE AND UPPER BACKFILL LIMITS SHALL BE TO FINISHED SUBGRADE OR FINISHED GROUND LINE.

LIMITS OF EXCAVATION PAID FOR UNDER "EXCAVATION FOR STRUCTURES RETAINING WALLS (R-40-580)". BACKFILL IN THIS AREA SHALL BE BACKFILL STRUCTURE PAID FOR SEPARATELY.

LIMITS OF EXCAVATION AND BACKFILL PAID FOR UNDER "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD OMP/PILOT".

UPPER EXCAVATION LIMITS SHALL BE TO THE EXISTING GROUND LINE AND UPPER BACKFILL LIMITS SHALL BE TO FINISHED SUBGRADE.




SECTION PERPENDICULAR TO CLEVELAND AVE

** BACKFILL SHALL BE IN ACCORDANCE WITH SECTION 207 OF THE STANDARD SPECIFICATIONS CONTRACTOR MAY USE EXCAVATED MATERIAL WITH APPROVAL OF THE ENGINEER

EXCAVATION/BACKFILL DETAIL

FOR INFORMATION ONLY

Addendum No. 01
ID 1060-33-81
Added Sheet 6680G
August 17, 2015

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-580

DRAWN BY JRM | PLANS CK'D. RLD

WALL DETAILS

SHEET 4 OF 6

6680G

8

8

Pdf_Dw_HS.plt
PEI_TextSub.tbl

FILE NAME : p:\milwaukee\projects\wisdot\21152.022\cleveland\cadd\sheets\08_580_0401det-wall.dgn PLOT DATE : 2/6/2013 10:10:14 AM PLOT BY : Paul Wirth (Rdwy_Wis) PLOT NAME : PLOT SCALE : 6.0000 sf / IN.

FILE=
SCALE =

| STATE PROJECT NUMBER |
|---|
| 1090-07-73 |

FOR INFORMATION ONLY

## CONCRETE STAINING SCHEDULE

FEDERAL COLOR - 33564

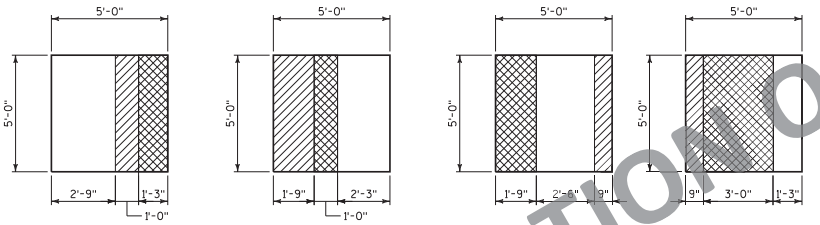
| MARK | COLOR | LOCATION | NOTES |
|---|---|---|---|
| A | BASE COLOR | SINGLE SLOPED PARAPETS | EXTERIOR, EXCEPT AS NOTED FOR ACCENT COLORS |
| | | VERTICAL FACE PARAPETS | BOTH SIDES, EXCEPT AS NOTED FOR ACCENT COLORS B |
| | | WALLS | EXPOSED FACES TO ~~1'-0" BELOW~~ FINISHED GRADE |

### STAIN COLORS

THE FINAL COLORING OF THE CONCRETE FOLLOWING APPLICATION OF THE STAIN SYSTEM SHALL MATCH THE SHERWIN WILLIAMS STANDARD COLOR SYSTEM LISTED.

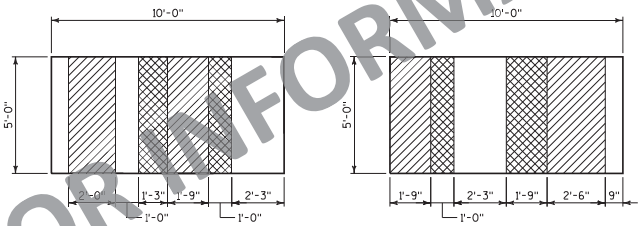
A BASE COLOR - WHOLE WHEAT - SW 6121 FEDERAL COLOR - 33564

B ACCENT COLOR #1 - BAGUETTE - SW 6123 FEDERAL COLOR - 33448

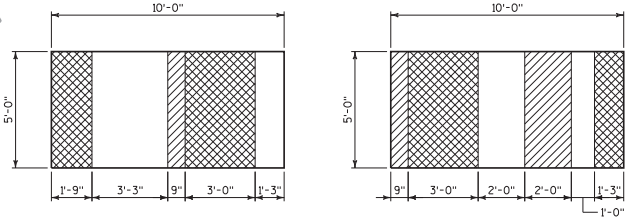



WALL PANEL "A" WALL PANEL "B" WALL PANEL "C" WALL PANEL "D"

5'-0" X 5'-0" MSE CONCRETE PANEL RAISED SURFACE DETAILS

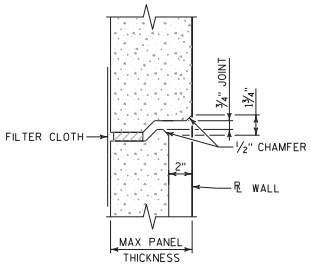



WALL PANEL "A" WALL PANEL "B"

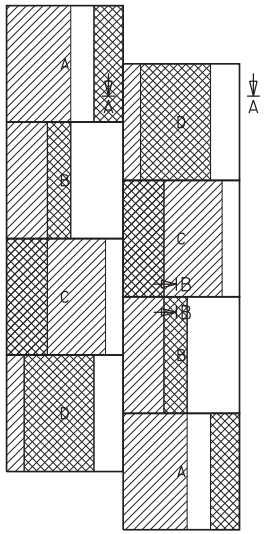



WALL PANEL "C" WALL PANEL "D"

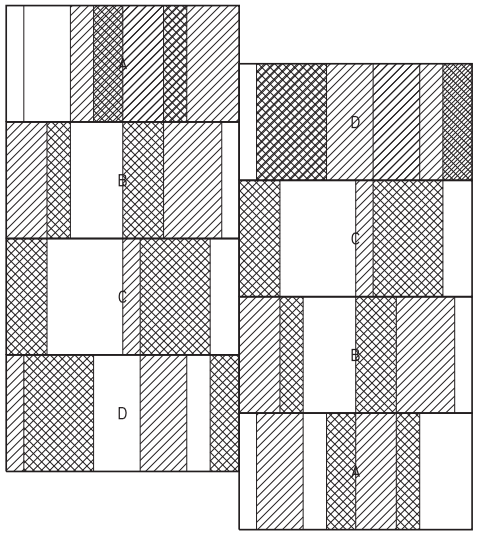
5'-0" X 10'-0" MSE CONCRETE PANEL RAISED SURFACE DETAILS



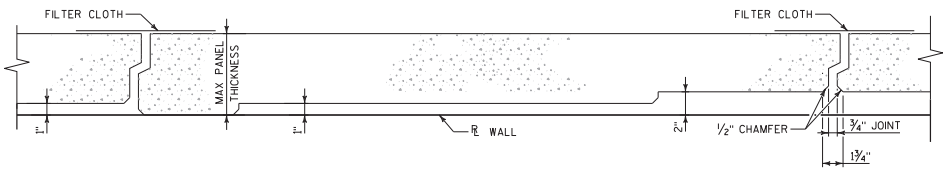

SECTION B-B



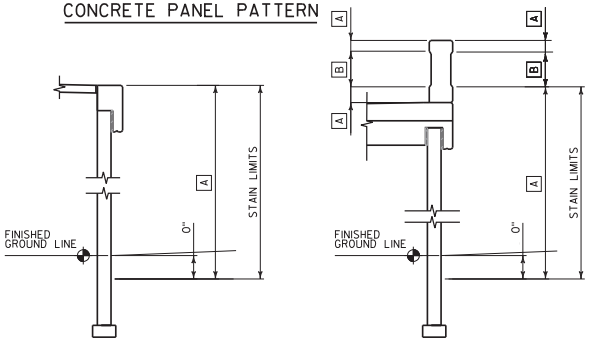

TYPICAL 5'-0" X 5'-0" MSE CONCRETE PANEL PATTERN




TYPICAL 5'-0" X 10'-0" MSE CONCRETE PANEL PATTERN




SECTION A-A




MSE WALL STAINING DIAGRAMS

### LEGEND

- MIN PANEL THICKNESS + 0"
- MIN PANEL THICKNESS + 1"
- MIN PANEL THICKNESS + 2"

Addendum No. 01
ID 1060-33-81
Added Sheet 6680H
August 17, 2015

| NO. | DATE | REVISION | BY |
|---|---|---|---|

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-580

DRAWN BY JRM | PLANS CK'D. PEW

AESTHETIC WALL TREATMENT DETAILS

SHEET 6 OF 6

6680H

8

8

Pdf_Dw_HS.plt
PEI_TextSub.tbl

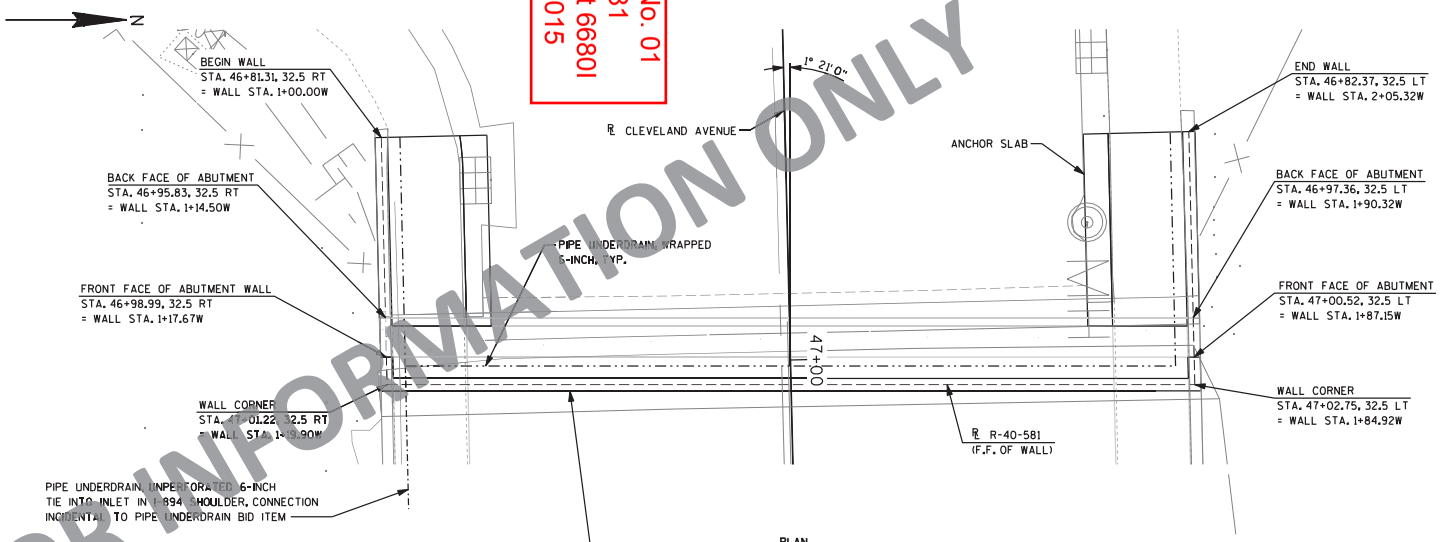
FILE NAME : p:\milwaukee\projects\wisdot\21152.022\cleveland\cadd\sheets\08_580_0501aesth.dgn PLOT DATE : 2/6/2013 10:10:16 AM PLOT BY : Paul Wirth (Rdwy_Wis) PLOT NAME : PLOT SCALE : 5:4 '=1n / IN.

FILE= SCALE =

Addendum No. 01
ID 1060-33-81
Added Sheet 66801
August 17, 2015

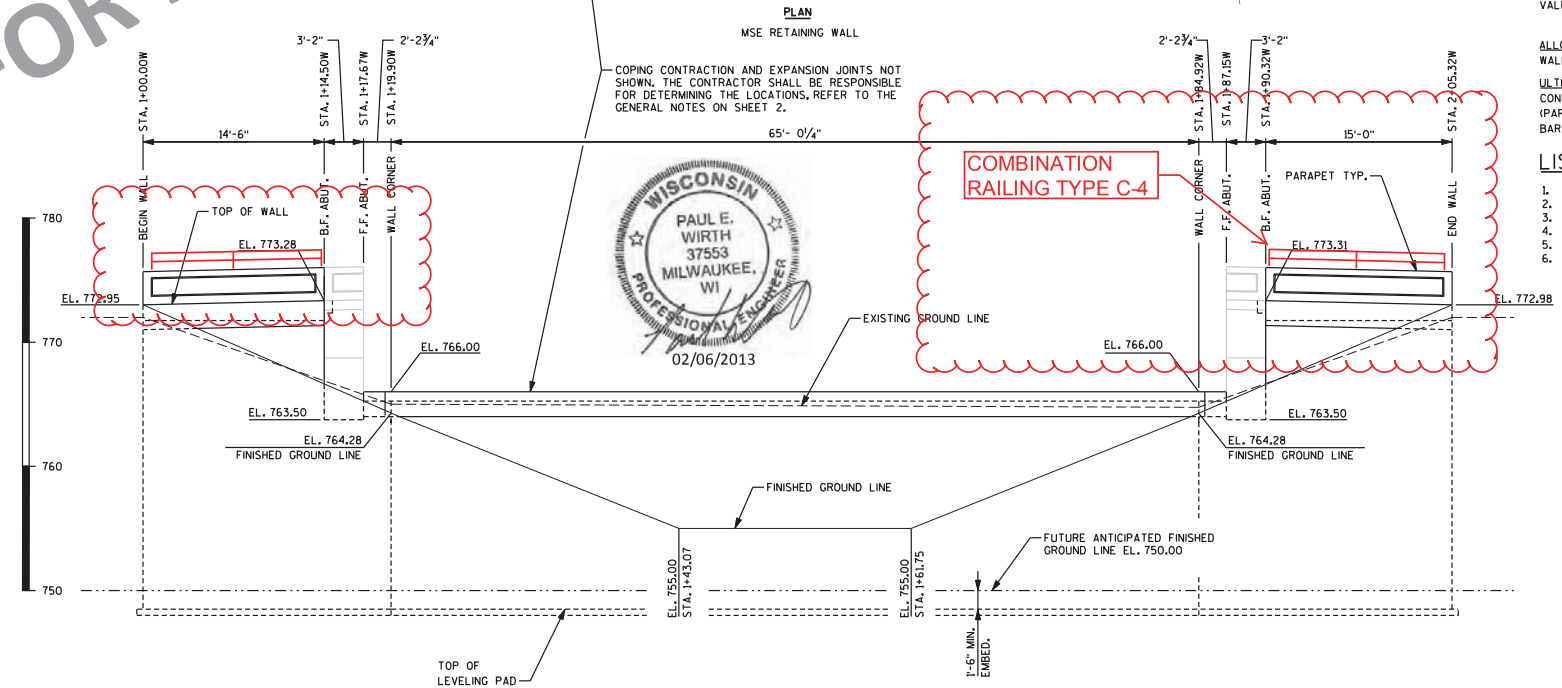
FOR INFORMATION ONLY

| STATE PROJECT NUMBER |
|---|
| 1090-07-73 |




PLAN

MSE RETAINING WALL




ELEVATION
(LOOKING WEST)

WISCONSIN
PAUL E. WIRTH
37553
MILWAUKEE, WI
PROFESSIONAL ENGINEER
02/06/2013

## DESIGN DATA

THE CONTRACTOR SHALL PROVIDE COMPLETE DESIGN, PLANS, DETAILS, SPECIFICATIONS, AND SHOP DRAWINGS FOR THE RETAINING WALLS IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE RETAINING WALL MANUFACTURER SHALL PROVIDE TECHNICAL ASSISTANCE TO THE CONTRACTOR DURING CONSTRUCTION. THE COST OF FURNISHING THESE ITEMS SHALL BE INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/OMP PILOT".

PLANS, ELEVATIONS AND DETAILS SHOWN ON THESE DRAWINGS ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS, HEIGHTS, AND DETAILS COMMON TO THE WALL SYSTEM SELECTED. THE CONTRACTOR SHALL VERIFY THAT THE WALL SYSTEM SELECTED WILL CONFORM TO THE REQUIRED ALIGNMENTS AND DETAILS.

THE RETAINING WALL IS TO BE DESIGNED USING THE ELEVATIONS GIVEN ON THIS SHEET.

THE RETAINING WALL DESIGN SHALL USE THE FUTURE ANTICIPATED FINISHED GROUND LINE ELEVATION TO DETERMINE THE MAXIMUM WALL HEIGHTS.

PROVIDE WALL CORNER DETAILS THAT WILL ALLOW FOR FUTURE EXTENSION OF THE RETAINING WALL PARALLEL TO THE ROADWAY.

DESIGN THE RETAINING WALL IN FRONT OF THE ABUTMENT BODY TO RESIST THE FORCE FROM ALL HORIZONTAL EARTH PRESSURE ACTING ON THE BACK OF THE ABUTMENT BELOW THE BEAM SEATS.

DESIGN THE RETAINING WALL FOR A LIVE LOAD SURCHARGE OF 240 PSF.

THE MAXIMUM VALUE OF THE ANGLE OF INTERNAL FRICTION OF THE WALL BACKFILL MATERIAL IN THE REINFORCED ZONE SHALL BE ASSUMED TO BE 30° WITHOUT CERTIFIED TEST VALUES.

ALLOWABLE WALL SYSTEMS:
WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD

ULTIMATE DESIGN STRESSES:
CONCRETE MASONRY
(PARAPET, SIDEWALK, ANCHOR SLAB AND COPING) f'c = 3,500 PSI
BAR STEEL REINFORCEMENT, GRADE 60 fy = 60,000 PSI

## LIST OF DRAWINGS


1. GENERAL PLAN
2. GENERAL NOTES AND QUANTITIES
3. SUBSURFACE EXPLORATION
4. WALL DETAILS
5. ANCHOR SLAB DETAILS
6. AESTHETIC WALL TREATMENT DETAILS


BUREAU OF STRUCTURES CONTACT:
WILLIAM DREHER (608) 266-8489

CONSULTANT CONTACT:
PAUL WIRTH (262) 901-2500

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

PATRICK ENGINEERING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher KAR 02/06/13
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE R-40-581

CLEVELAND AVENUE OVER IH 894

| COUNTY | TOWN/CITY/VILLAGE |
|---|---|
| MILWAUKEE | WEST ALLIS |

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

| DESIGNED BY | DESIGN CK'D. | DRAWN BY | PLANS CK'D. |
|---|---|---|---|
| PEW | RLD | JRM | RLD |

GENERAL PLAN

SHEET 1 OF 6

66801

8

8

Pdf_Dw_HS.plt
PEI_TextSub.tbl

| STATE PROJECT NUMBER |
|---|
| 1090-07-73 |

## TOTAL ESTIMATED QUANTITIES

| | ITEM NO. | BID ITEM | UNIT | TOTAL |
|---|---|---|---|---|
| | 206.3000 | EXCAVATION FOR STRUCTURES RETAINING WALLS (R-40-581) | LS | 1 |
| | 502.3200 | PROTECTIVE SURFACE TREATMENT | SY | 31 |
| ** | 504.0500 | CONCRETE MASONRY RETAINING WALLS | CY | 19 |
| ** | 505.0615 | BAR STEEL REINFORCEMENT HS COATED RETAINING WALLS | LB | 1,740 |
| | 612.0206 | PIPE UNDERDRAIN UNPERFORATED 6-INCH | LF | 70 |
| | 612.0406 | PIPE UNDERDRAIN WRAPPED 6-INCH | LF | 105 |
| | 652.0225 | CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH | LF | 12 |
| | SPV.0165.01 | WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/OMP PILOT | SF | 2,050 |
| | SPV.0165.03 | CONCRETE STAINING R-40-581 | SF | ~~900~~ |
| | | | | |
| | | | | |
| | | NON-BID ITEM | | |
| | | PRE-FORMED JOINT FILLER | SIZE | ¾" |
| | | NON-BITUMINOUS JOINT SEALER | SIZE | ¾", 1" |
| | | CORK FILLER | SIZE | 1" |

ALL ITEMS ARE CATEGORY 0040

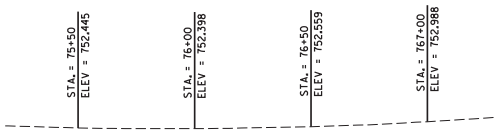
** QUANTITY INCLUDES ANCHOR SLAB AND PARAPET

## WALL EXTERNAL AND OVERALL STABILITY EVALUATION

| DIMENSIONS | | | | | |
|---|---|---|---|---|---|
| WALL HEIGHT (FEET)[1] | 24.9 | 17.5 | | | |
| EXPOSED WALL HEIGHT (FEET)[2] | 23.4 | 16.0 | | | |
| MINIMUM LENGTH OF REINFORCEMENT (FEET) | 25.0 | 26.0 | | | |
| WALL STATION | 1+90.32 | 1+52.40 | | | |
| BORING USED | C-05 | C-01 | | | |
| **CAPACITY TO DEMAND RATIO (CDR)** | | | | | |
| SLIDING (CDR > 1.0) | 1.03 | 1.04 | | | |
| ECCENTRICTY (CDR > 1.0) | 1.98 | 2.75 | | | |
| FACTORED BEARING RESISTANCE (PSF) | 9,300 | 9,300 | | | |
| BEARING (CDR > 1.0) | 1.68 | 1.88 | | | |
| OVERALL STABILITY (CDR > 1.0) | 1.06 | 1.10 | | | |

NOTES;

1. THE WALL HEIGHT INCLUDES AN EMBEDMENT OF 1.5 FEET BELOW THE FUTURE ANTICIPATED GRADE LINE.
2. THE EXPOSED WALL HEIGHT IS BASED ON THE FUTURE ANTICIPATED GRADE LINE.
3. THE WALL STABILITY EVALUATION INCLUDED A SURCHARGE LOAD THAT WAS EQUAL TO THE WEIGHT OF THE SOIL BEHIND THE ABUTMENT.

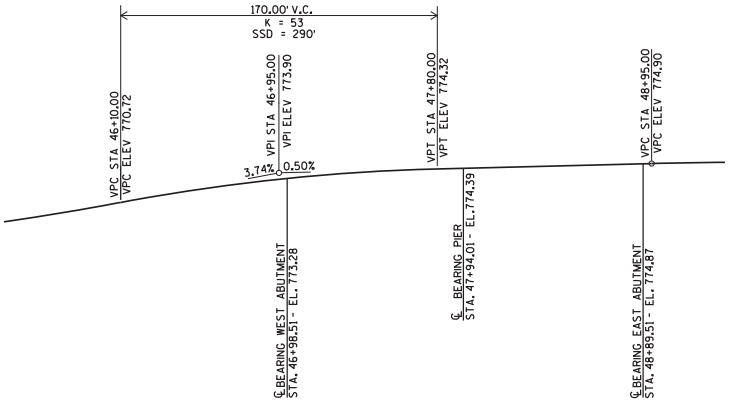



EXISTING PROFILE GRADE LINE - IH 894 SB

(ALONG CROWN-STATION INCREASE TO NORTH)

## SOIL PARAMETERS

| SOIL DESCRIPTIONS & STRATUM LOCATIONS | FRICTION ANGLE (DEGREES) | COHESION (PSF) | UNIT WEIGHT (PCF) |
|---|---|---|---|
| GRANULAR BACKFILL WITHIN THE WALL IN THE WALL REINFORCING ZONE | 30 | 0 | 120 |
| FILL BEHIND THE REINFORCING ZONE | 29 | 0 | 130 |
| BORING C-1, STA. 47+94.4 - RT 21.52, C-4, STA. 46+77.44 - LT 51.46, C-5, STA. 46+75.21 - RT 38.21 | | | |
| FILL, SANDY SILT, SANDY CLAY AND TRACE GRAVEL ELEVATION 772.7 FEET TO 764.7 FEET | 30 | 0 | 125 |
| SILTY SAND, BROWN LEAN CLAY AND TRACE GRAVEL ELEVATION 764.7 FEET TO 759.7 FEET | 0 | 2000 | 125 |
| GRAY LEAN CLAY, TRACE SAND AND GRAVEL, STIFF TO HARD ELEVATION 759.7 FEET TO 744.7 FEET | 0 | 2400 | 130 |
| GRAY LEAN CLAY, TRACE SAND AND GRAVEL, STIFF TO HARD ELEVATION 744.7 FEET TO 724.7 FEET | 0 | 2900 | 130 |
| GRAY LEAN CLAY, TRACE SAND AND GRAVEL, STIFF TO HARD ELEVATION 724.7 FEET TO 672.7 FEET | 0 | 5000 | 135 |




PROPOSED PROFILE GRADE LINE - CLEVELAND AVE.

## GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.

BEVEL EXPOSED EDGES OF CONCRETE ¾", UNLESS NOTED OTHERWISE.

APPLY PROTECTIVE SURFACE TREATMENT TO THE TOP OF THE CONCRETE PARAPETS, TOP OF SIDEWALKS, FACE OF CURBS AND TOP OF CURB FLANGES.

THE 'W' STATION LINE SIGNIFIES THE WALL ℄ LINE STATIONING ALONG THE FRONT FACE OF R-40-581.

ALL WALL STATIONING AND OFFSETS ARE GIVEN AT THE FRONT FACE OF WALL.

COORDINATE CONSTRUCTION OF THE WALL WITH THE WEST ABUTMENT CONSTRUCTION FOR BRIDGE B-40-884.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE LOCATIONS OF ALL EXPANSION AND CONTRACTION JOINTS. LOCATE THE JOINTS TO COINCIDE WITH THE VERTICAL MSE WALL PANEL JOINTS.

THE PLAN QUANTITY FOR THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/OMP PILOT" IS BASED ON A WALL HEIGHT MEASURED FROM THE TOP OF THE WALL TO THE TOP OF THE LEVELING PAD.

THE QUANTITY OF CONCRETE MASONRY FOR THE CAST-IN-PLACE ANCHOR SLAB, SIDEWALK AND PARAPET IS PAID FOR UNDER THE BID ITEM "CONCRETE MASONRY RETAINING WALLS".

THE QUANTITIES AND REINFORCEMENT DETAILS ARE BASED ON AN ASSUMED WALL PANEL THICKNESS OF 5½" AND A 5" PANEL EMBEDMENT. FOR PANEL THICKNESS AND PANEL EMBEDMENT DIFFERENT THAN THESE VALUES, THE CONTRACTOR SHALL VERIFY REINFORCEMENT BAR DETAILS AND QUANTITIES AND WILL BE RESPONSIBLE FOR ANY QUANTITY VARIATIONS.

FILLER SHALL CONFORM TO THE REQUIREMENTS OF AASHTO DESIGNATION M153, TYPES I, II OR III OR M213.

ALL CONTRACTORS EQUIPMENT MUST MAINTAIN THE MINIMUM OSHA CLEARANCE FROM ATC AND WE ENERGIES OVERHEAD FACILITIES AS DESCRIBED IN OSHA'S GUIDELINES FOR CLEARANCES. ALL CONTRACTORS SHOULD INCORPORATE ANY ADDITIONAL COSTS ASSOCIATED WITH WORKING AROUND EXISTING ATC AND WE ENERGIES FACILITIES INTO THEIR BID. AS ATC AND WE ENERGIES BELIEVE THEY DO NOT IMPOSE ANY DIRECT CONFLICTS WITH THE SCOPE OF THIS PROJECT.

FOR INFORMATION ONLY

Addendum No. 01
ID 1060-33-81
Added Sheet 6680J
August 17, 2015

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-581

DRAWN BY JRM | PLANS CK'D. RLD

GENERAL NOTES & QUANTITIES

SHEET 2 OF 6

6680J

8

8

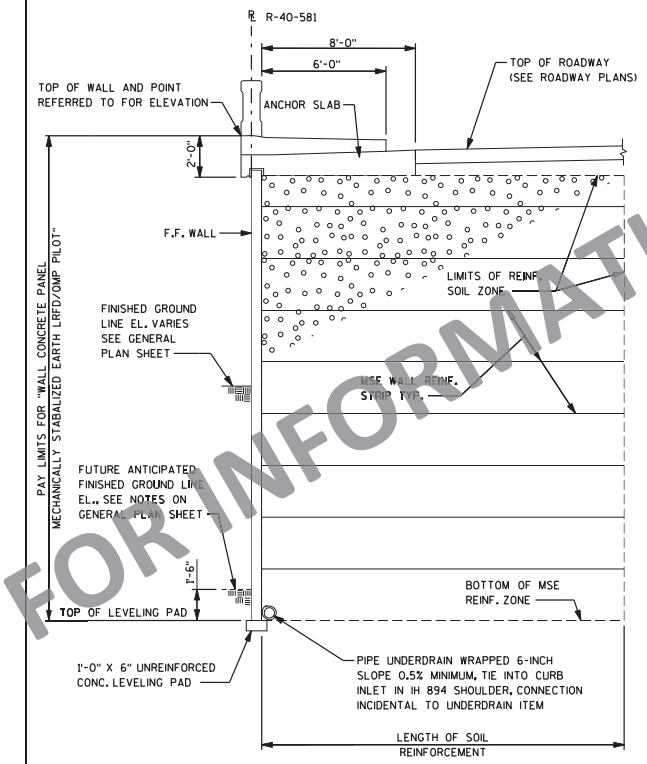
Pdf_Dw_HS.plt
PEI_Text+Sub.tbl

FILE = SCALE =

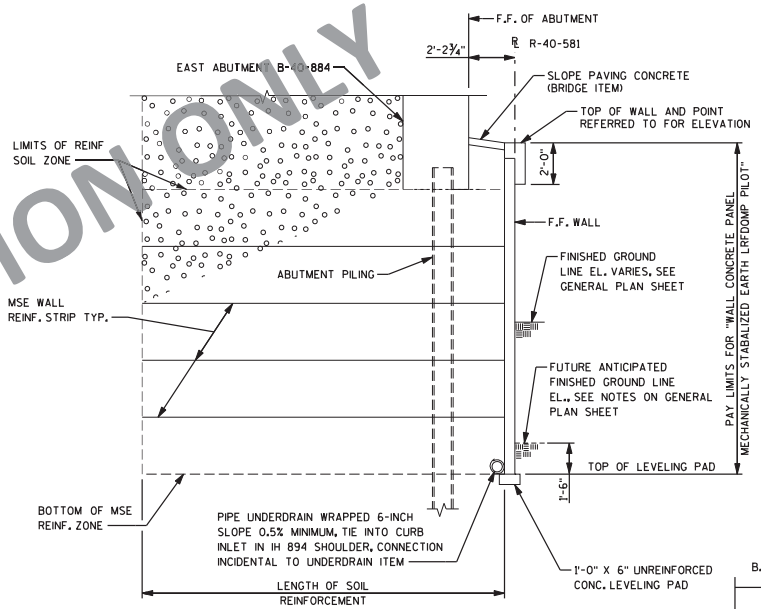
FILE NAME : p:\milwaukee\projects\wisdot\21152.022\cleveland\cadd\sheets\08_581_0201qty.dgn PLOT DATE : 2/6/2013 2:37:04 PM PLOT BY : Paul Wirth (Rdwy_Wis) PLOT NAME : PLOT SCALE : 24.0000 sf / IN.

FOR INFORMATION ONLY

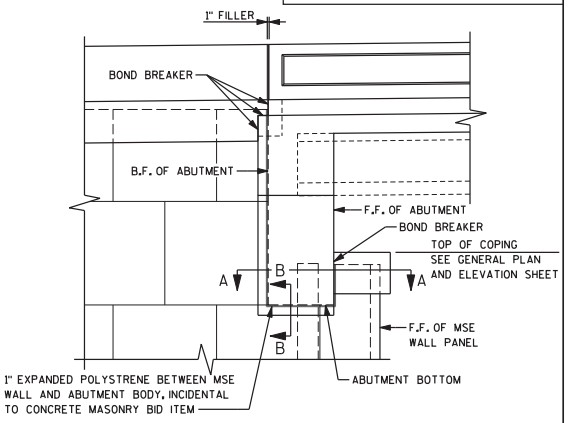
| STATE PROJECT NUMBER |
|---|
| 1090-07-73 |



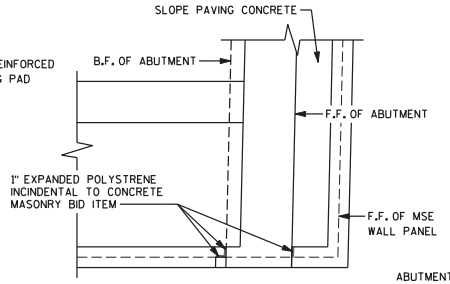

SECTION THRU RETAINING WALL



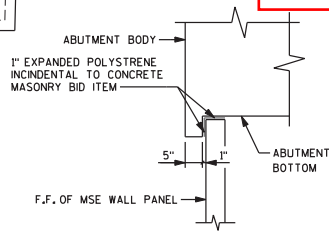

SECTION THRU RETAINING WALL AT ABUTMENT



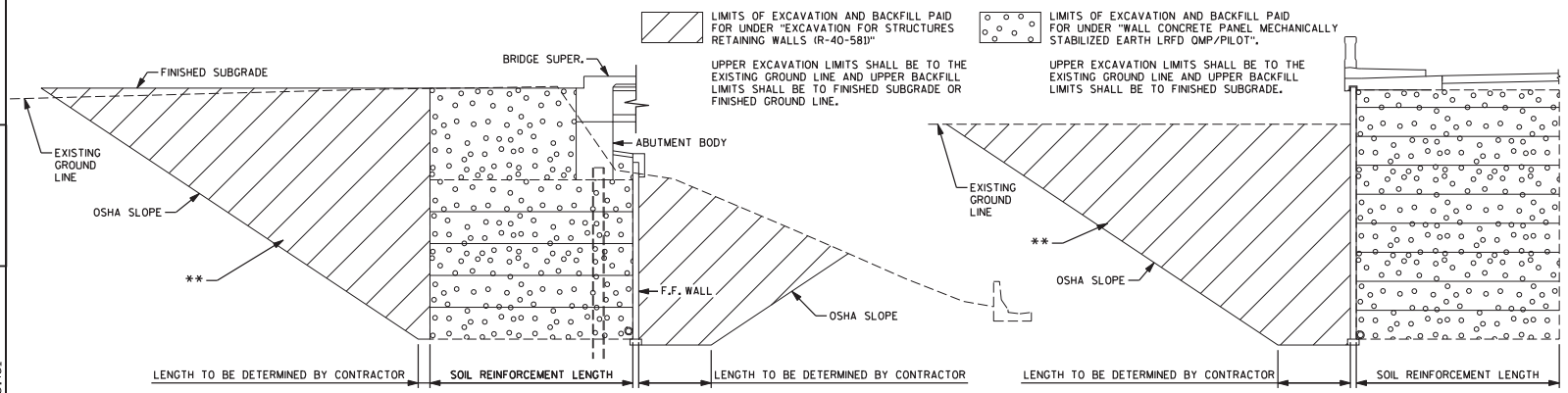

ABUTMENT/MSE WALL INTERFACE




SECTION A-A




SECTION B-B




** BACKFILL SHALL BE IN ACCORDANCE WITH SECTION 207 OF THE STANDARD SPECIFICATIONS CONTRACTOR MAY USE EXCAVATED MATERIAL WITH APPROVAL OF THE ENGINEER

SECTION PARALLEL WITH CLEVELAND AVE

SECTION PERPENDICULAR TO CLEVELAND AVE

EXCAVATION/BACKFILL DETAIL

Addendum No. 01
ID 1060-33-81
Added Sheet 6680K
August 17, 2015

| NO. | DATE | REVISION | BY |
|---|---|---|---|

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-581

DRAWN BY JRM | PLANS CK'D. RLD

WALL DETAILS

SHEET 4 OF 6

6680K

8

8

Pdf_Dw_HS.plt
PEI_TextSub.tbl

FILE NAME : p:\milwaukee\projects\wisdot\21152.022\cleveland\cadd\sheets\08_581_0401det-wall.dgn PLOT DATE : 2/6/2013 2:37:08 PM PLOT BY : Paul Wirth (Rdwy_Wis) PLOT NAME : PLOT SCALE : 6.0000 sf / IN.

FILE=
SCALE =

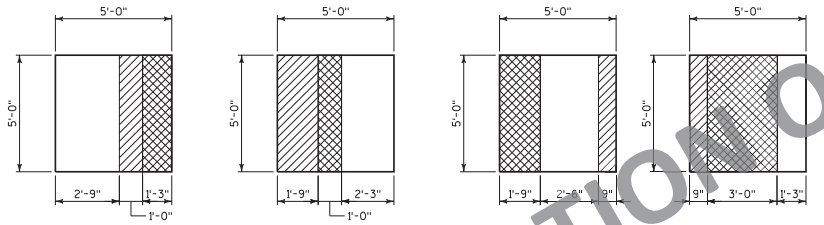
| STATE PROJECT NUMBER |
|---|
| 1090-07-73 |

## CONCRETE STAINING SCHEDULE

| MARK | COLOR | LOCATION | NOTES |
|---|---|---|---|
| A | BASE COLOR | SINGLE SLOPED PARAPETS | EXTERIOR, EXCEPT AS NOTED FOR ACCENT COLORS |
| | | VERTICAL FACE PARAPETS | BOTH SIDES, EXCEPT AS NOTED FOR ACCENT COLORS B |
| | | WALLS | EXPOSED FACES TO ~~1'-0" BELOW~~ FINISHED GRADE |

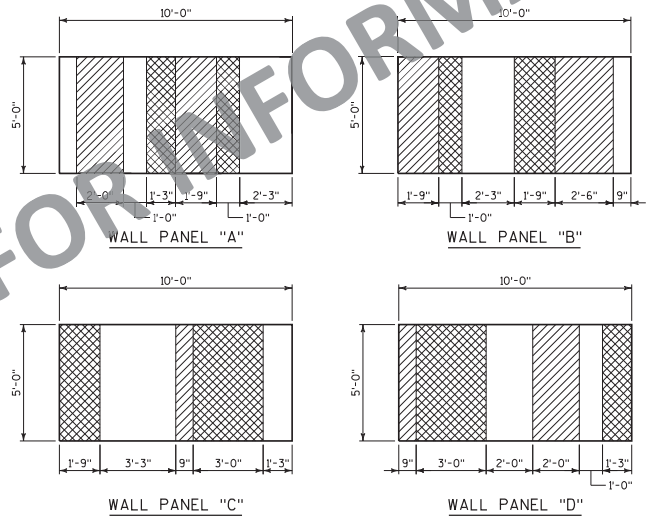
### STAIN COLORS

THE FINAL COLORING OF THE CONCRETE FOLLOWING APPLICATION OF THE STAIN SYSTEM SHALL MATCH THE SHERWIN WILLIAMS STANDARD COLOR SYSTEM LISTED.
A BASE COLOR - WHOLE WHEAT - SW 6121 FEDERAL COLOR -33564
B ACCENT COLOR #1 - BAGUETTE - SW 6123 FEDERAL COLOR -33448




WALL PANEL "A" WALL PANEL "B" WALL PANEL "C" WALL PANEL "D"

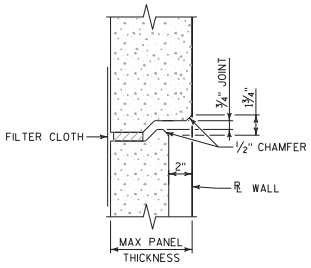
5'-0" X 5'-0" MSE CONCRETE PANEL RAISED SURFACE DETAILS



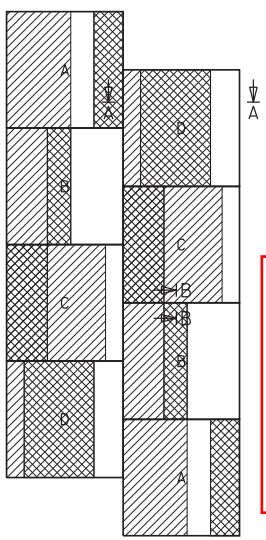

WALL PANEL "A" WALL PANEL "B"

WALL PANEL "C" WALL PANEL "D"

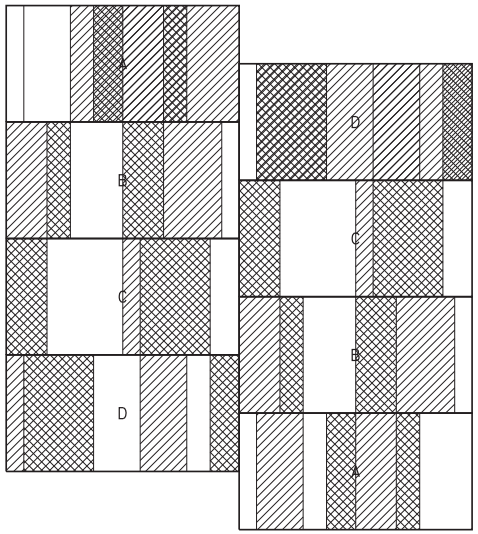
5'-0" X 10'-0" MSE CONCRETE PANEL RAISED SURFACE DETAILS




SECTION B-B

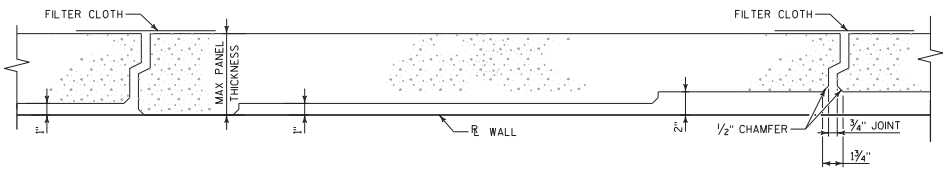



TYPICAL 5'-0" X 5'-0" MSE CONCRETE PANEL PATTERN

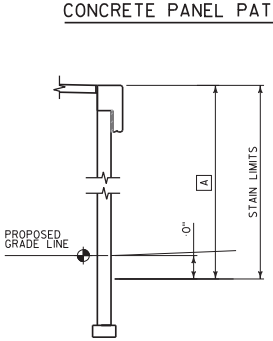


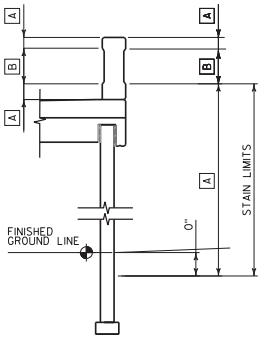

TYPICAL 5'-0" X 10'-0" MSE CONCRETE PANEL PATTERN

Addendum No. 01
ID 1060-33-81
Added Sheet 6680L
August 17, 2015




SECTION A-A




MSE WALL STAINING DIAGRAMS

### LEGEND

- MIN PANEL THICKNESS + 0"
- MIN PANEL THICKNESS + 1"
- MIN PANEL THICKNESS + 2"

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-581

| DRAWN BY | JRM | PLANS CK'D. | PEW |
|---|---|---|---|

AESTHETIC WALL TREATMENT DETAILS

SHEET 6 OF 6

6680L

FOR INFORMATION ONLY

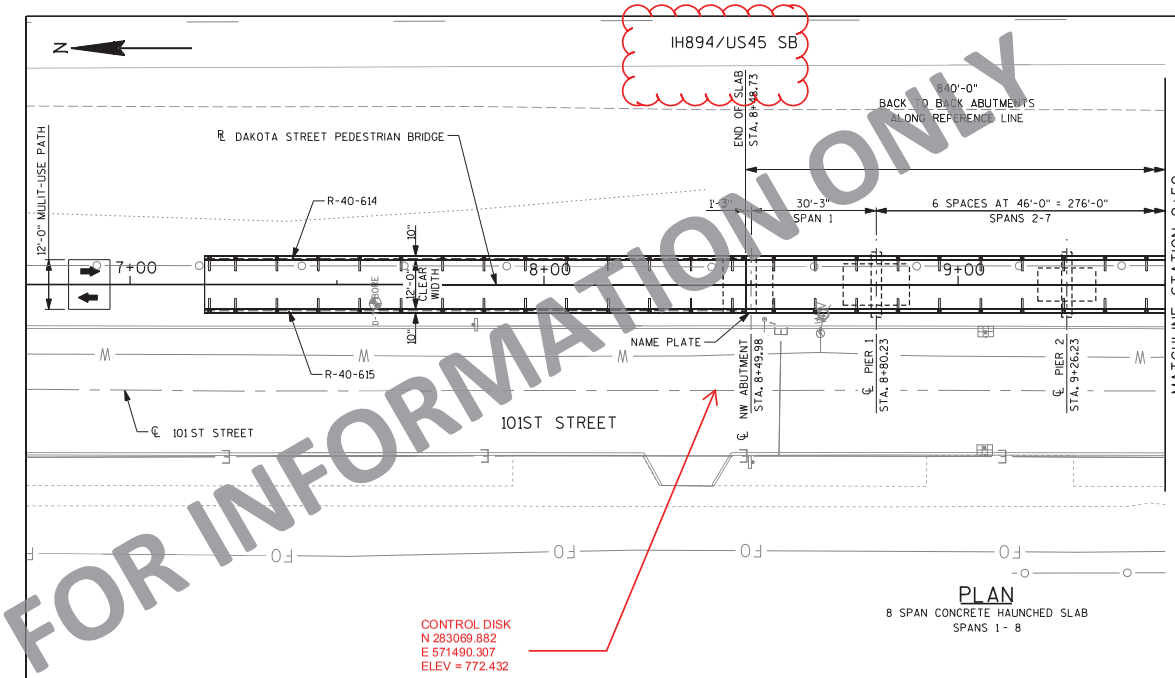
8

8

Pdf_Dw_HS.plt
PEI_TextSub.tbl

FILE NAME : p:\milwaukee\projects\wisdot\21152.022\cleveland\cadd\sheets\08_581_0501aesth.dgn PLOT DATE : 2/6/2013 2:37:11 PM PLOT BY : Paul Wirth (Rdwy_Wis) PLOT NAME : PLOT SCALE : 5:4 '':in / IN.

FILE= SCALE =

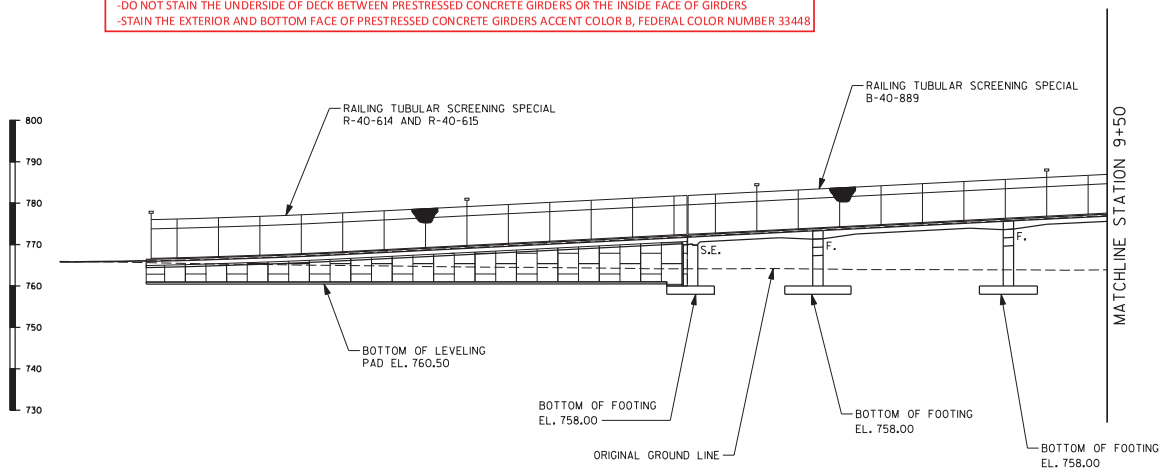



PLAN

8 SPAN CONCRETE HAUNCHED SLAB
SPANS 1 - 8

FOR INFORMATION ONLY

STAIN ALL EXPOSED CONCRETE SURFACES ON B-40-889 BASE COLOR A, FEDERAL COLOR NUMBER 33564, EXCEPT AS NOTED BELOW:
- -DO NOT STAIN TOP OF DECK, INSIDE OF CURB OR TOP OF CURB
- -DO NOT STAIN TOP OF PIER CAPS OR ABUTMENT BEAM SEATS
- -DO NOT STAIN THE UNDERSIDE OF DECK BETWEEN PRESTRESSED CONCRETE GIRDERS OR THE INSIDE FACE OF GIRDERS
- -STAIN THE EXTERIOR AND BOTTOM FACE OF PRESTRESSED CONCRETE GIRDERS ACCENT COLOR B, FEDERAL COLOR NUMBER 33448




ELEVATION

(LOOKING EAST)

# DESIGN DATA

## BRIDGE LOADS

| | |
|---|---|
| LIVE LOAD | 90 psf |
| VEHICLE LOAD (H-10) | 20,000 lbs |
| WIND LOAD ON SUPERSTRUCTURE: | |
| TRANSVERSE | 50 psf |
| LONGITUDINAL | 12 psf |
| UPLIFT | 20 psf |
| WIND LOAD ON SUBSTRUCTURE: | |
| TRANSVERSE AND LONGITUDINAL | 40 psf |

## ULTIMATE DESIGN STRESSES:

| | |
|---|---|
| CONCRETE MASONRY, SLAB | f'c = 4,000 psi |
| ALL OTHER | f'c = 3,500 psi |
| HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60 | fy = 60,000 psi |
| 45W" PRESTRESSED I-GIRDER | |
| CONCRETE MASONRY | f'c = 7,200 psi |
| 0.6" DIA. STRANDS WITH ULTIMATE STRENGTH OF | fu = 270,000 psi |

## FOUNDATION DATA:

PIERS AND ABUTMENTS WITH SPREAD FOOTINGS TO BE SUPPORTED ON CLEAN UNDISTURBED SOIL WITH A REQUIRED FACTORED BEARING RESISTANCE OF 6,000 PSF. A GEOTECHNICAL ENGINEER WILL DETERMINE THE FACTORED BEARING RESISTANCE BY VISUAL INSPECTION PRIOR TO CONSTRUCTION OF THE PIER AND ABUTMENT FOOTINGS.

*** THE FACTORED BEARING RESISTANCE IS THE VALUE USED FOR DESIGN.

## TRAFFIC DATA

IH 894
ADT = 139,000 (2012)
ADT = 160,000 (2032)
DESIGN SPEED = 60 MPH

## LIST OF DRAWINGS:

1. GENERAL PLAN
2. GENERAL PLAN
3. GENERAL PLAN
4. GENERAL PLAN
5. CROSS SECTIONS, GENERAL NOTES, AND QUANTITIES
6. PROFILES
7. SUBSURFACE EXPLORATION
8. SUBSURFACE EXPLORATION
9. SUBSURFACE EXPLORATION
10. NORTH WEST ABUTMENT
11. NORTH EAST ABUTMENT
12. PIERS 1, 2, 16, 17
13. PIERS 1, 2, 16, 17, DETAILS 1
14. PIERS 3, 4, 5, 6, 7, 13, 14, 15
15. PIERS 3, 4, 5, 6, 7, 13, 14, 15 DETAILS 1
16. PIERS 3, 4, 5, 6, 7, 13, 14, 15 DETAILS 2
17. PIERS 8 & 12
18. PIERS 8 & 12 DETAILS 1
19. PIER 9
20. PIER 11
21. PIER 10
22. PRESTRESSED GIRDER BEARINGS
23. 45W" PRESTRESSED GIRDER DETAILS
24. 45W" PRESTRESSED GIRDER DETAILS
25. FRAMING PLAN
26. STEEL DIAPHRAGM
27. SUPERSTRUCTURE SPANS 1-8 & 13-18
28. SUPERSTRUCTURE SPANS 10 & 11
29. SUPERSTRUCTURE DETAILS
30. SUPERSTRUCTURE DETAILS 1
31. SUPERSTRUCTURE DETAILS 2
32. SUPERSTRUCTURE DETAILS 3
33. WEST PLATFORM
34. EAST PLATFORM
35. EXPANSION DEVICE
36. COVER PLATE DETAILS
37. FLOOR DRAIN TYPE "H" (MODIFIED)
38. DOWN-SPOUT DETAILS
39. RAIL POST SPACING DETAILS
40. RAIL POST SPACING DETAILS
41. RAIL POST SPACING DETAILS
42. RAILING DETAILS
43. RAILING DETAILS
44. CONDUIT DETAILS
45. PREFABRICATED STEEL STAIRS WEST
46. PREFABRICATED STEEL STAIRS EAST

STATE PROJECT NUMBER
1100-03-79

Addendum No. 01
ID 1060-33-81
Added Sheet 6680M
August 17, 2015

WISCONSIN
KURT E. FEUERSTEIN
MILWAUKEE, WI
PROFESSIONAL ENGINEER
2/5/2014

BUREAU OF STRUCTURES CONTACT:
WILLIAM DREHER (608-266-8489)

CONSULTANT CONTACT:
PAUL WIRTH (262-901-2500)

| NO. | DATE | REVISION | BY |
|---|---|---|---|

PATRICK ENGINEERING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher KAR 02/06/14
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-40-889

DAKOTA STREET PED BRIDGE OVER I-894/US

| | |
|---|---|
| COUNTY | MILWAUKEE |
| ~~TOWN~~/CITY/~~VILLAGE~~ | WEST ALLIS |
| DESIGN SPEC. | AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS |
| DESIGNED BY | PEW |
| DESIGN CK'D. | DMM |
| DRAWN BY | JRM |
| PLANS CK'D. | KEF |

GENERAL PLAN & ELEVATION

SHEET 1 OF 46

6680M

8

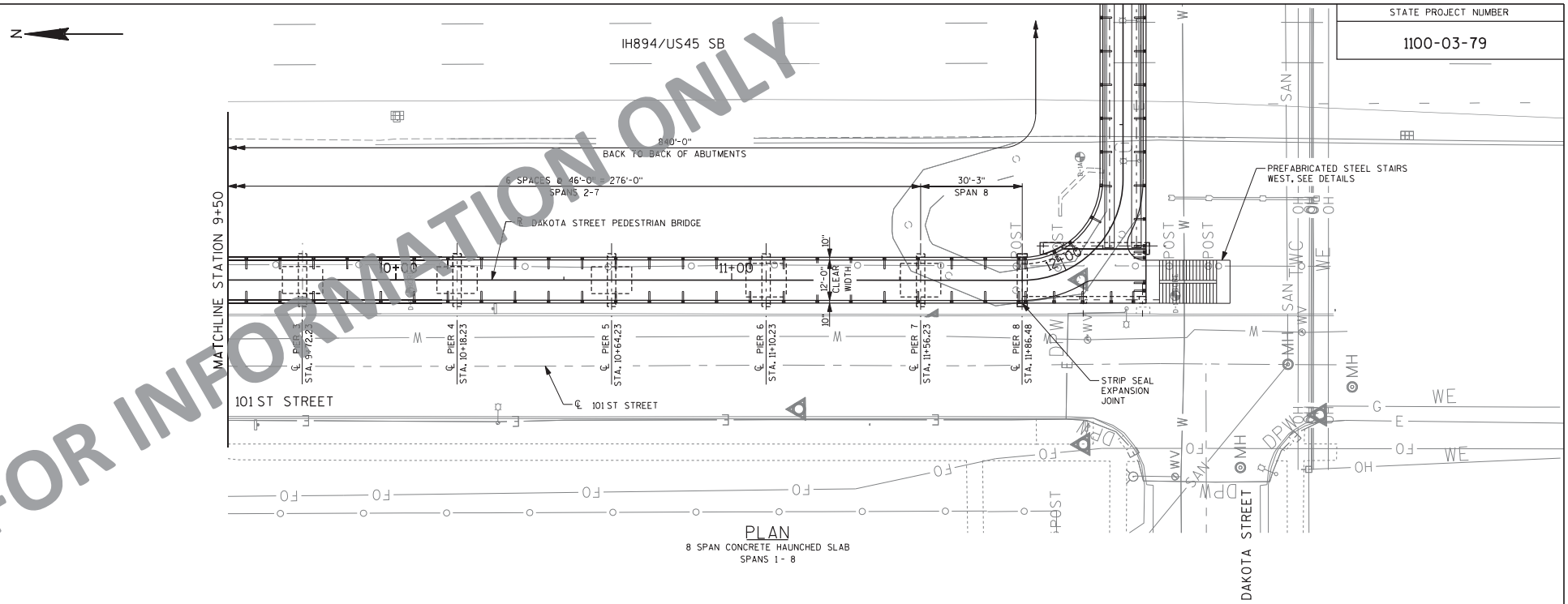
8

Pdf_Dw_HS.plt
PEI_TextSub.tbl

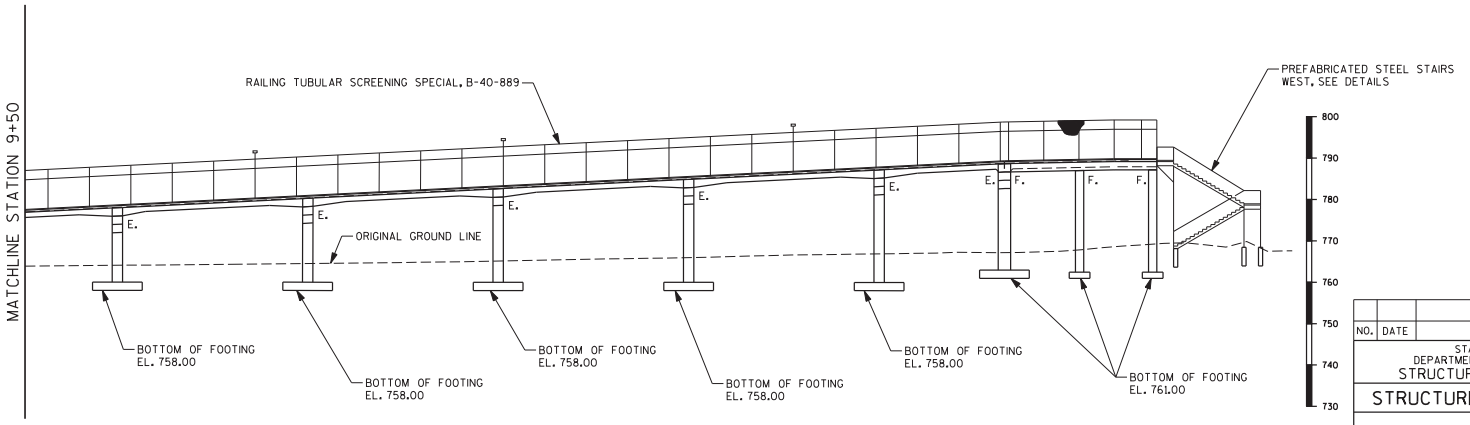
FILE NAME : p:\milwaukee\projects\wisdot\21152.022\dakota\cadd\sheets\080001_GP.dgn PLOT DATE : 2/5/2014 3:10:13 PM PLOT BY : Kurt Feuerstein (Rdwy_Wis) PLOT NAME : PLOT SCALE : 29.9999 sf / IN.

FOR INFORMATION ONLY

| STATE PROJECT NUMBER |
|---|
| 1100-03-79 |




PLAN
8 SPAN CONCRETE HAUNCHED SLAB
SPANS 1 - 8




ELEVATION
(LOOKING EAST)

Addendum No. 01
ID 1060-33-81
Added Sheet 6680N
August 17, 2015

| NO. | DATE | REVISION | BY |
|---|---|---|---|

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-889

DRAWN BY JRM | PLANS CK'D. PEW

GENERAL PLAN & ELEVATION

SHEET 2 OF 46

6680N

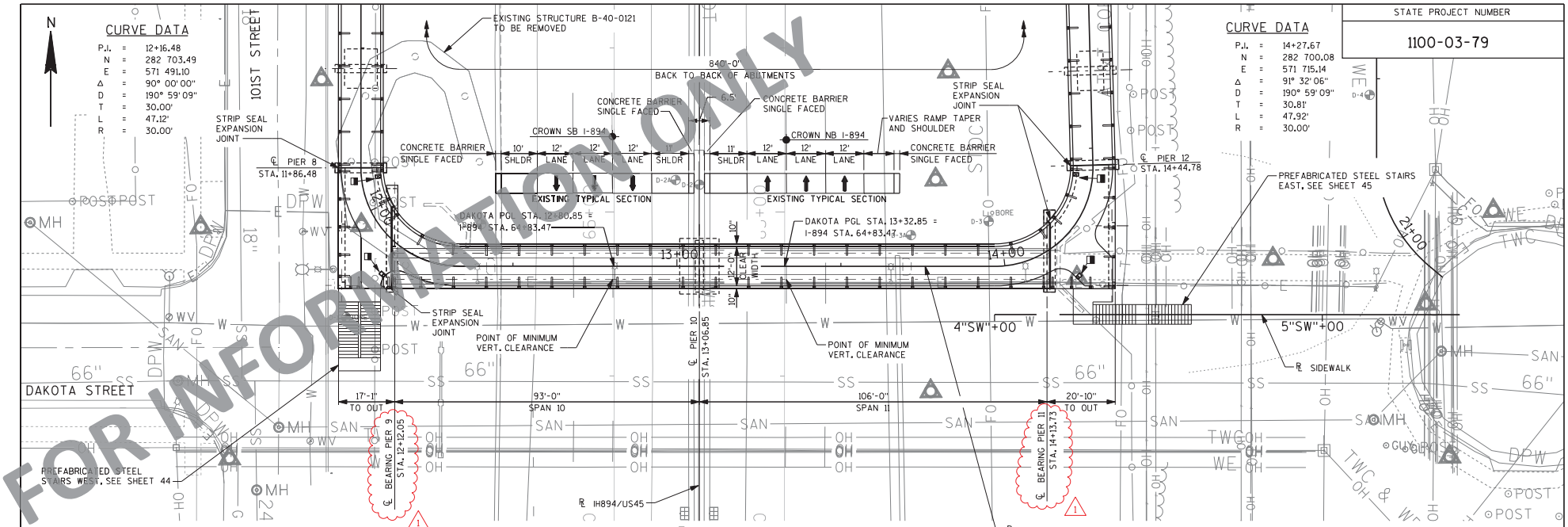
8

8

Pdf_Dw_HS.plt
PEI_TextSub.tbl

FILE NAME : p:\milwaukee\projects\wisdot\21152.022\dakota\cadd\Sheets\080002_GP.dgn PLOT DATE : 2/5/2014 3:10:18 PM PLOT BY : Kurt Feuerstein (Rdwy_Wis) PLOT NAME : PLOT SCALE : 30.0002 sf / IN.

FILE= SCALE =




PLAN

45W" PRESTRESSED GIRDERS
SPANS 10 - 11

FOR INFORMATION ONLY

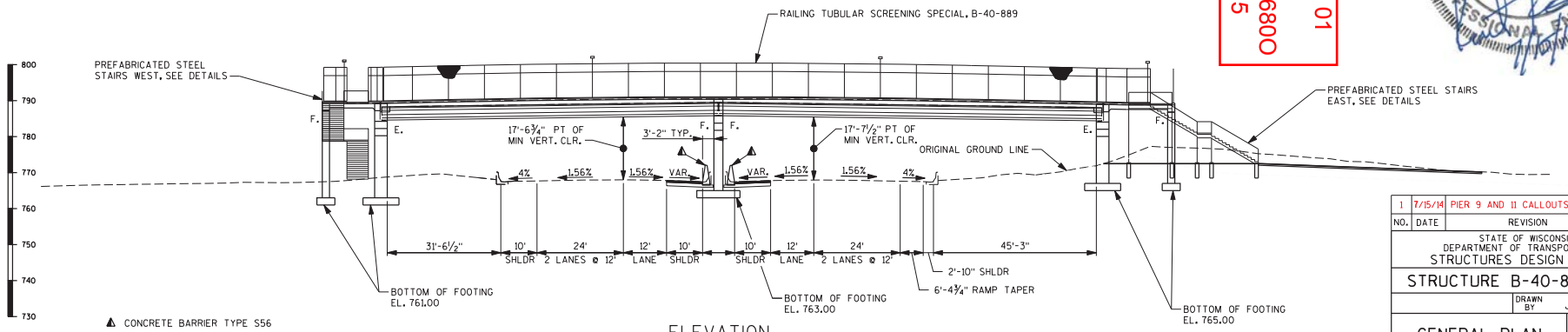
STATE PROJECT NUMBER

1100-03-79

Addendum No. 01
ID 1060-33-81
Added Sheet 6680O
August 17, 2015

Plan Sheet Accepted By WISDOT
BUREAU OF STRUCTURES




ELEVATION
(LOOKING NORTH)

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 1 | 7/15/14 | PIER 9 AND 11 CALLOUTS | KEF |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-889

DRAWN BY JRM | PLANS CK'D. PEW

GENERAL PLAN & ELEVATION

SHEET 3 OF 46

6680O

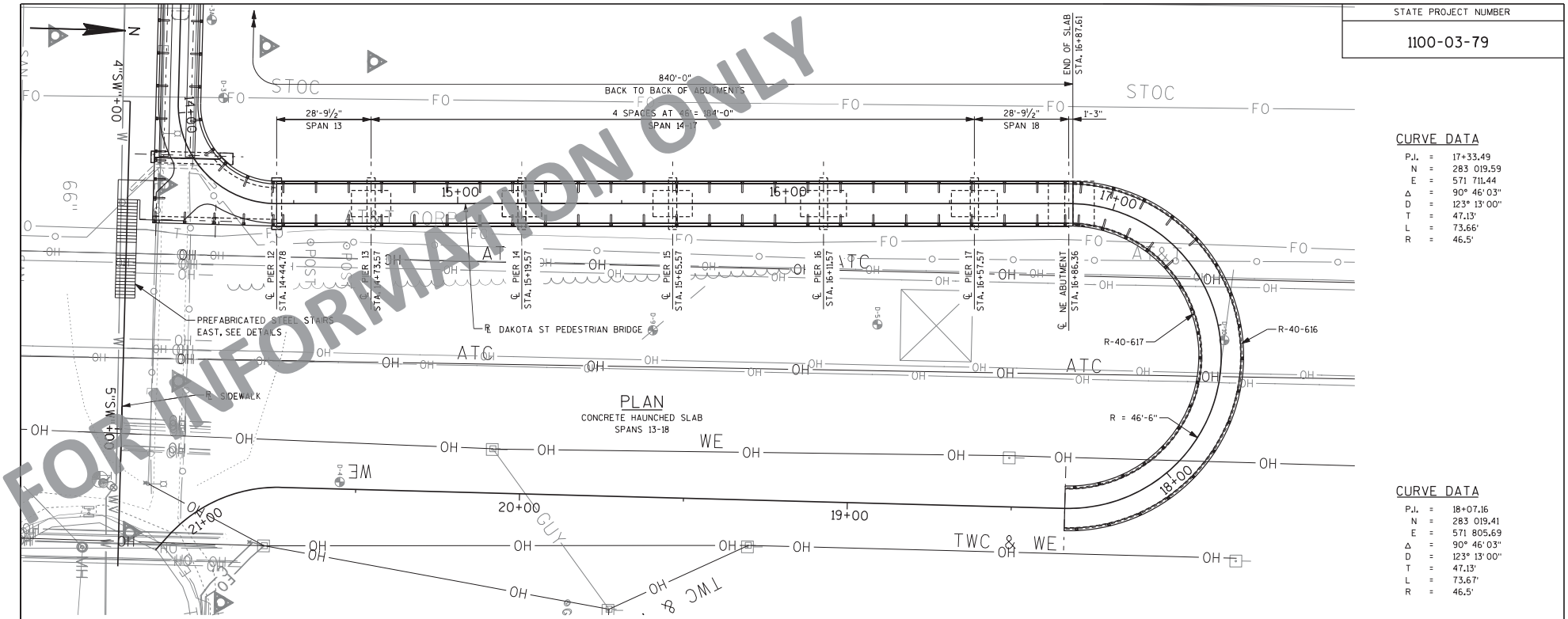
8

8

Pdf_Dw_HS.plt
PEI_TEXTSUB.TBL

FILE NAME : P:\Milwaukee\Projects\WisDOT\21152.022\Dakota\CADD\Sheets\080003_GP.dgn PLOT DATE : 7/15/2014 9:25:24 AM PLOT BY : Kurt Feuerstein (Rdwy_Wis) PLOT NAME : PLOT SCALE : 30.0000 sf / IN.

FILE= SCALE =

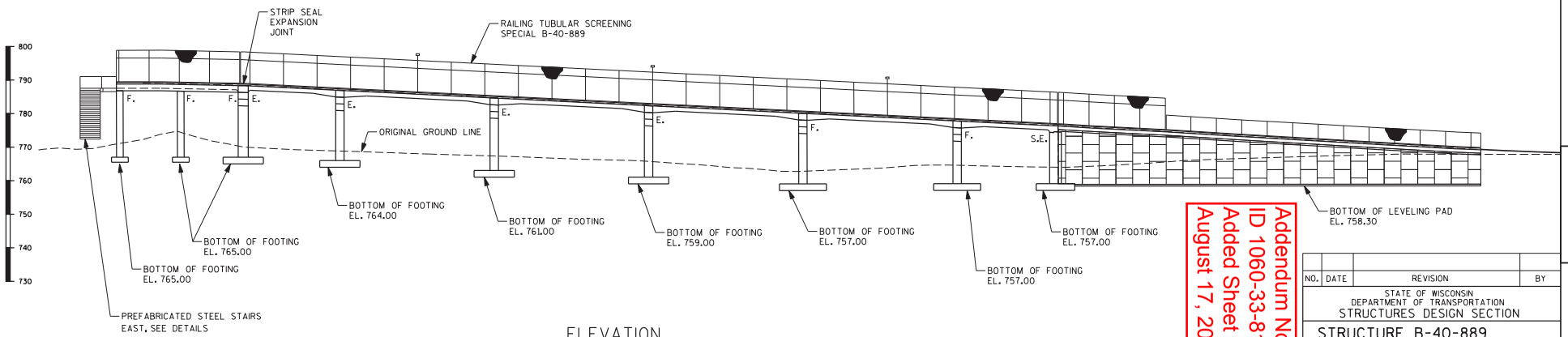



## CURVE DATA

| | | |
|---|---|---|
| P.I. | = | 17+33.49 |
| N | = | 283 019.59 |
| E | = | 571 711.44 |
| Δ | = | 90° 46' 03" |
| D | = | 123° 13' 00" |
| T | = | 47.13' |
| L | = | 73.66' |
| R | = | 46.5' |

## CURVE DATA

| | | |
|---|---|---|
| P.I. | = | 18+07.16 |
| N | = | 283 019.41 |
| E | = | 571 805.69 |
| Δ | = | 90° 46' 03" |
| D | = | 123° 13' 00" |
| T | = | 47.13' |
| L | = | 73.67' |
| R | = | 46.5' |




## ELEVATION
(LOOKING WEST)

FOR INFORMATION ONLY

Addendum No. 01
ID 1060-33-81
Added Sheet 6680P
August 17, 2015

STATE PROJECT NUMBER
1100-03-79

| NO. | DATE | REVISION | BY |
|---|---|---|---|

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-889

DRAWN BY JRM | PLANS CK'D. PEW

GENERAL PLAN & ELEVATION

SHEET 4 OF 46

6680P

8

8

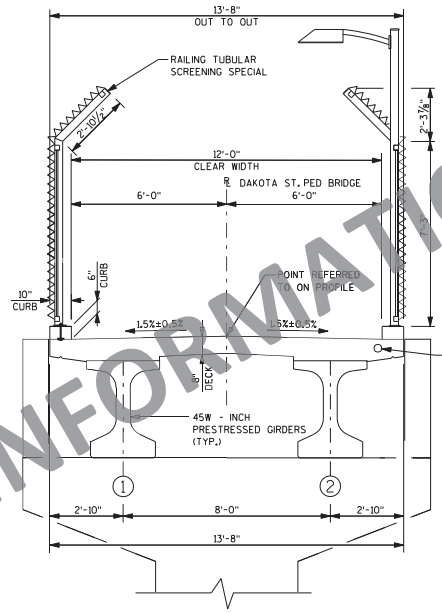
Pdf_Dw_HS.plt
PEI_TextSub.tbl

FILE NAME : p:\milwaukee\projects\wisdot\21152.022\dakota\cadd\Sheets\080004_GP.dgn PLOT DATE : 2/5/2014 3:10:25 PM PLOT BY : Kurt Feuerstein (Rdwy_Wis) PLOT NAME : PLOT SCALE : 30.0002 sf / IN.

FILE= SCALE =

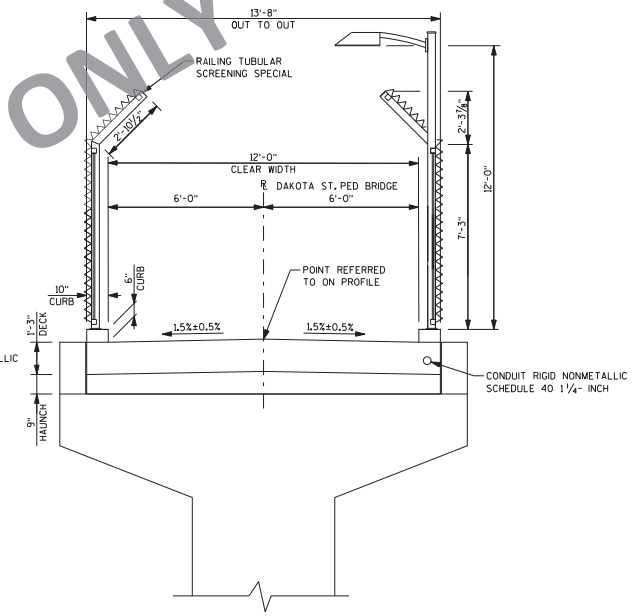
FOR INFORMATION ONLY

| STATE PROJECT NUMBER |
|---|
| 1100-03-79 |




PROPOSED BRIDGE CROSS SECTION

MAIN SPANS 10 & 11
(LOOKING EAST)




PROPOSED BRIDGE CROSS SECTION

APPROACH SPANS 1 - 8 AND 13 - 18
(LOOKING NORTH)

## GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" UNLESS OTHERWISE NOTED.

THE FIRST OR FIRST TWO DIGITS OF THE BAR SIGNIFIES THE BAR SIZE.
THE EXISTING GROUND LINE SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION AT THE PIERS AND ABUTMENTS.

AT THE BACKFACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE PRESTRESSED GIRDER DETAILS SHEET.

BENDING DIMENSIONS FOR REINFORCING BARS ARE SHOWN ARE OUT-TO-OUT.

THE UTILITY INFORMATION SHOWN ON THESE DRAWINGS CONCERNING THE TYPE AND LOCATION OF EXISTING UTILITY INSTALLATIONS IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR SHALL MAKE THE DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES NECESSARY TO AVOID DAMAGE.

INFORMATION ON THESE DRAWINGS RELATING TO THE EXISTING BRIDGE IS BASED UPON DRAWINGS AVAILABLE FROM THE WISCONSIN DEPARTMENT OF TRANSPORTATION. NO GUARANTY OR WARRANTY IS MADE THAT THE INFORMATION IS ALL INCLUSIVE OR COMPLETELY ACCURATE. THE CONTRACTOR SHALL MAKE THE DETERMINATION OF THE ACTUAL CONDITIONS TO BE ENCOUNTERED.

THIS STRUCTURE WILL REPLACE B-40-121 WHICH IS AN 11 SPAN CONTINUOUS FLAT AND HAUNCHED CONCRETE SLAB STRUCTURE APPROXIMATELY 376' LONG AND 10' WIDE, SUPPORTED ON CONCRETE ABUTMENT AND PIERS FOUNDED ON SPREAD FOOTINGS. THE CONTRACTOR SHALL REMOVE ALL ELEMENTS OF THE EXISTING BRIDGE THAT INTERFERE WITH CONSTRUCTION OF THE PROPSED BRIDGE. ALL CONTRACTORS EQUIPEMENT MUST MAINTAIN THE MINIMUM OSHA CLEARANCE FROM ATC AND WE ENERGIES OVERHEAD FACILITIES AS DESCRIBED IN OSHA'S GUIDELINES FOR CLEARANCES. ALL ASSOCIATED WITH WORKING AROUND EXISTING ATC AND WE ENERGIES FACILITIES INTO THEIR BID. AS ATC AND WE ENERGIES BELIEVES THEY DO NOT IMPOSE ANY DIRECT CONFLICTS WITH THE SCOPE OF THIS PROJECT.

DECK ELEVATIONS LISTED ON THE PLANS ARE FIGURED USING A 2.0% CROSS SLOPE.

ALL STATIONS AND ELEVATIONS ARE IN FEET.

STAIN ALL EXPOSED CONCRETE SURFACES ON B-40-889 BASE COLOR A, FEDERAL COLOR NUMBER 33564, EXCEPT AS NOTED BELOW:
-DO NOT STAIN TOP OF DECK, INSIDE OF CURB OR TOP OF CURB
-DO NOT STAIN TOP OF PIER CAPS OR ABUTMENT BEAM SEATS
-DO NOT STAIN THE UNDERSIDE OF DECK BETWEEN PRESTRESSED CONCRETE GIRDERS OR THE INSIDE FACE OF GIRDERS
-STAIN THE EXTERIOR AND BOTTOM FACE OF PRESTRESSED CONCRETE GIRDERS ACCENT COLOR B, FEDERAL COLOR NUMBER 33448

## TOTAL ESTIMATED QUANTITIES

| ITEM NO. | BID ITEM | UNIT | NW ABUTMENT | PIER 1 | PIER 2 | PIER 3 | PIER 4 | PIER 5 | PIER 6 | PIER 7 | PIER 8 | PIER 9 | PIER 10 | PIER 11 | PIER 12 | PIER 13 | PIER 14 | PIER 15 | PIER 16 | PIER 17 | NE ABUTMENT | SUPER | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 203.0200 | REMOVING OLD STRUCTURE (STA 12+06.85 ) | LS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1 |
| 203.0225.S | DEBRIS CONTAINMENT STRUCTURE B-40-889 | LS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1 |
| 206.1000 | EXCAVATION FOR STRUCTURE BRIDGES B-40-889 | LS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1 |
| 502.0100 | CONCRETE MASONRY BRIDGES | CY | 26 | 21 | 19 | 19 | 20 | 21 | 24 | 25 | 27 | 118 | 29 | 76 | 25 | 20 | 20 | 20 | 21 | 20 | 35 | 631 | 1217 |
| 502.3100 | EXPASION DEVICE (B-40-889) | LS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1 |
| 502.3200 | PROTECTIVE SURFACE TREATMENT | SY | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1435 | 1435 |
| 503.0146 | PRESTRESSED GIRDER TYPE 145W-INCH | LF | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 400 | 400 |
| 505.0405 | BAR STEEL REINFORCEMENT HS BRIDGES | LB | 1010 | 1090 | 770 | 660 | 660 | 660 | 820 | 820 | 820 | 1620 | 1600 | 1220 | 820 | 660 | 660 | 660 | 770 | 770 | 1630 | 850 | 18571 |
| 505.0605 | BAR STEEL REINFORCEMENT HS COATED BRIDGES | LB | 1200 | 1720 | 1910 | 2080 | 2250 | 2410 | 2600 | 2760 | 3480 | 16330 | 2850 | 11070 | 3070 | 2300 | 2350 | 2320 | 2300 | 2130 | 2090 | 102440 | 169660 |
| 506.2605 | BEARING PADS ELASTOMERIC NON-LAMINATED | EACH | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 4 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 4 |
| 506.2610 | BEARING PADS ELASTOMERIC LAMINATED | EACH | --- | --- | --- | --- | --- | --- | --- | --- | --- | 2 | --- | 2 | --- | --- | --- | --- | --- | --- | --- | --- | 4 |
| 506.4000 | STEEL DIAPHRAGMS (B-40-889) | EACH | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 4 | 4 |
| 514.2625 | DOWNSPOUT 6-INCH | LF | --- | --- | --- | --- | --- | --- | --- | --- | 25 | 25 | --- | 25 | 25 | --- | --- | --- | --- | --- | --- | --- | 100 |
| 516.0500 | RUBBERIZED MEMBRANE WATERPROOFING | SY | 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 2 | --- | 4 |
| 652.0115 | CONDUIT RIGID METALLIC 1 1/4-INCH | LF | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 60 | 60 |
| 652.0210 | CONDUIT RIGID NONMETALLIC SCHEDULE 40 1-INCH | LF | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 165 | 165 |
| 652.0215 | CONDUIT RIGID NONMETALLIC SCHEDULE 40 1 1/4-INCH | LF | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 835 | 835 |
| SPV.0060.17 | FLOOR DRAINS TYPE H MODIFIED | EACH | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 4 | 4 |
| SPV.0105.03 | RAILING TUBULAR SCREENING SPECIAL B-40-889 | LS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1 |
| SPV.0105.08 | PREFABRICATED STEEL STAIR CASE WEST | LS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1 |
| SPV.0105.09 | PREFABRICATED STEEL STAIR CASE EAST | LS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1 |
| | NON-BID ITEMS | | | | | | | | | | | | | | | | | | | | | | |
| | PREFORMED JOINT FILLER | SIZE | | | | | | | | | | | | | | | | | | | | | 3/4" |
| | NON-BITUMINOUS JOINT FILLER | SIZE | | | | | | | | | | | | | | | | | | | | | 3/4" |
| | CORK FILLER | SIZE | | | | | | | | | | | | | | | | | | | | | 3/4" |
| | NAME PLATE | EACH | | | | | | | | | | | | | | | | | | | | | 1 |

ALL ITEMS ARE CATEGORY 0020

Addendum No. 01
ID 1060-33-81
Added Sheet 6680Q
August 17, 2015

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-889

DRAWN BY JRM | PLANS CK'D. PEW

CROSS SECTIONS, GENERAL NOTES & QUANTITIES

SHEET 5 OF 46

6680Q

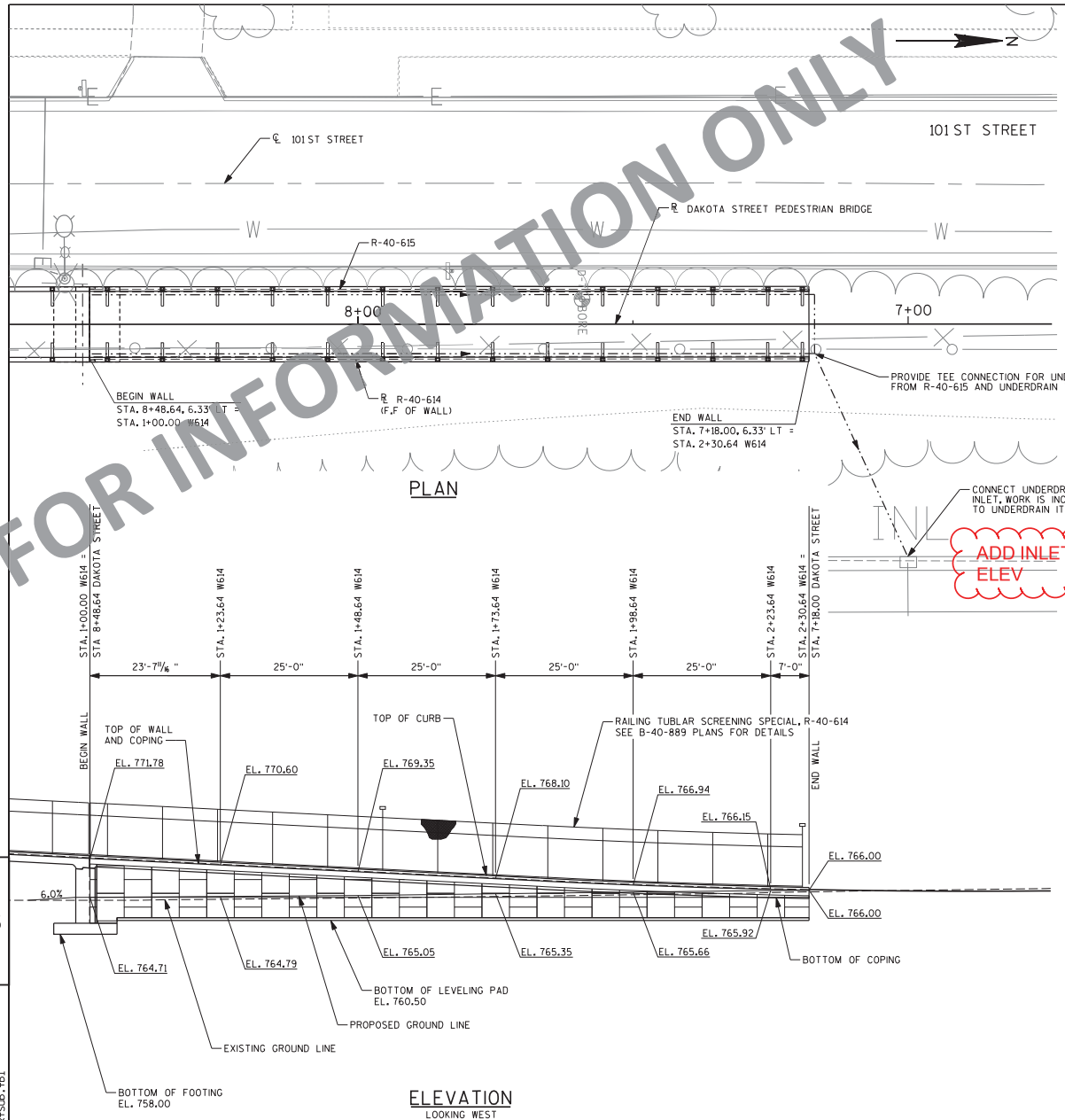
8

8

Pdf_Dw_HS.plt
PEI_TextSub.tbl

FILE =
SCALE =

FILE NAME : p:\milwaukee\projects\wisdot\21152.022\dakota\cadd\Sheets\080020_GN.dgn PLOT DATE : 2/5/2014 3:10:27 PM PLOT BY : Kurt Feuerstein (Rdwy_Wis) PLOT NAME : PLOT SCALE : 4.8000 sf / IN.




FOR INFORMATION ONLY

STAIN ALL EXPOSED CONCRETE SURFACES ON R-40-614 BASE COLOR A, FEDERAL COLOR NUMBER 33564, EXCEPT AS FOLLOWS:
-DO NOT STAIN TOP OF SLAB, INSIDE FACE OF CURB OR TOP OF CURB

STATE PROJECT NUMBER
1100-03-79

## DESIGN DATA

THE CONTRACTOR SHALL PROVIDE COMPLETE DESIGN, PLANS, DETAILS, SPECIFICATIONS, AND SHOP DRAWINGS FOR THE RETAINING WALLS IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE RETAINING WALL MANUFACTURER SHALL PROVIDE TECHNICAL ASSISTANCE TO THE CONTRACTOR DURING CONSTRUCTION. THE COST OF FURNISHING THESE ITEMS SHALL BE INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD".

PLANS, ELEVATIONS AND DETAILS SHOWN ON THESE DRAWINGS ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS, HEIGHTS, AND DETAILS COMMON TO THE WALL SYSTEM SELECTED. THE CONTRACTOR SHALL VERIFY THAT THE WALL SYSTEM SELECTED WILL CONFORM TO THE REQUIRED ALIGNMENTS AND DETAILS.

THE RETAINING WALL IS TO BE DESIGNED USING THE ELEVATIONS GIVEN ON THIS SHEET.

DESIGN THE RETAINING WALL FOR A LIVE LOAD SURCHARGE OF 100 PSF.

THE MAXIMUM VALUE OF THE ANGLE OF INTERNAL FRICTION OF THE WALL BACKFILL MATERIAL IN THE REINFORCED ZONE SHALL BE ASSUMED TO BE 30° WITHOUT CERTIFIED TEST VALUES.

ALLOWABLE WALL SYSTEMS:
WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD

ULTIMATE DESIGN STRESSES:
CONCRETE MASONRY
(PARAPET, SIDEWALK, ANCHOR SLAB AND COPING) f'c = 3,500 PSI
BAR STEEL REINFORCEMENT, GRADE 60 fy = 60,000 PSI

WISCONSIN
KURT E. FEUERSTEIN
MILWAUKEE, WI
REGISTERED PROFESSIONAL ENGINEER
2/5/2014

## LIST OF DRAWINGS

1. GENERAL PLAN AND ELEVATION
2. GENERAL NOTES AND QUANTITIES
3. SUBSURFACE EXPLORATION
4. WALL AND SLAB DETAILS

BUREAU OF STRUCTURES CONTACT:
WILLIAM DREHER (608-266-8489)
CONSULTANT CONTACT:
KURT FEUERSTEIN (262-901-2508)

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

Addendum No. 01
ID 1060-33-81
Added Sheet 6680R
August 17, 2015

PATRICK ENGINEERING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher KAR 02/06/14
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE R-40-614

DAKOTA STREET PED BRIDGE OVER I-894/US

| COUNTY | TOWN/CITY/VILLAGE |
|---|---|
| MILWAUKEE | WEST ALLIS |

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

| DESIGNED BY | DESIGN CK'D. | DRAWN BY | PLANS CK'D. |
|---|---|---|---|
| PEW | DMM | JRM | KEF |

GENERAL PLAN AND ELEVATION

SHEET 1 OF 4

6680R

8

8

Pdf_Dw_HS.plt
PEI_TextSub.tbl

FILE NAME : p:\milwaukee\projects\wisdot\21152.022\dakota\cadd\sheets\081001_gp.dgn PLOT DATE : 1/31/2014 2:32:40 PM PLOT BY : Kurt Feuerstein (Rdwy_Wis) PLOT NAME : PLOT SCALE : 20.0000 sf / IN.

| STATE PROJECT NUMBER |
|---|
| 1100-03-79 |

## TOTAL ESTIMATED QUANTITIES

| | ITEM NO. | BID ITEM | UNIT | TOTAL |
|---|---|---|---|---|
| | 206.3000 | EXCAVATION FOR STRUCTURES RETAINING WALLS (R-40-614) | L.S. | 1.0 |
| | 502.3200 | PROTECTIVE SURFACE TREATMENT | SY | 110.0 |
| ** | 504.0500 | CONCRETE MASONRY RETAINING WALLS | CY | 35.0 |
| ** | 505.0615 | BAR STEEL REINFORCEMENT HS COATED RETAINING WALLS | LB | [illegible] |
| | 532.0500.S | WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD | SF | 996.0 |
| | 612.0406 | PIPE UNDERDRAIN WRAPPED 6-INCH | LF | 173.0 |
| | 652.0115 | CONDUIT RIGID METALLIC 1 1/4-INCH | LF | [illegible] |
| | 652.0215 | CONDUIT RIGID NONMETALLIC SCHEDULE 40 1 1/4-INCH | LF | 111.0 |
| | SPV.0105.04 | RAILING TUBULAR SCREENING SPECIAL R-40-614 | | 1.0 |
| | | NON-BID ITEMS | | |
| | | EXPANDED POLYSTYRENE | SIZE | 1" |
| | | NON-BITUMINOUS JOINT FILLER | SIZE | 1" |
| | | CORK FILLER | SIZE | 1" |

ALL ITEMS ARE CATEGORY 0030

** QUANTITY INCLUDES SLAB AND CURB

FOR INFORMATION ONLY

## SOIL PARAMETERS

| SOIL DESCRIPTIONS & STRATUM LOCATIONS | FRICTION ANGLE (DEGREES) | COHESION (PSF) | UNIT WEIGHT (PCF) |
|---|---|---|---|
| GRANULAR BACKFILL WITHIN THE WALL IN THE WALL REINFORCING ZONE | | 0 | 120 |
| BORING D-7, STA. 7+60.00- LT 25' | | | |
| FILL, SAND, GRAVEL AND CLAY, BROWN, MOIST. ELEVATION 764.7 FEET TO 761.7 FEET | 21 | 0 | 130 |
| GRAY LEAN CLAY AND TRACE SAND, VERY STIFF ELEVATION 761.7 FEET TO 729.7 FEET | 21 | 0 | 130 |

## WALL EXTERNAL AND OVERALL STABILITY EVALUATION

| DIMENSIONS | | | | | |
|---|---|---|---|---|---|
| WALL HEIGHT (FEET)[1] | 11.3 | | | | |
| EXPOSED WALL HEIGHT (FEET)[2] | 7.6 | | | | |
| MINIMUM LENGTH OF REINFORCEMENT (FEET) | 8.0 | | | | |
| WALL STATION | 1+00.00 | | | | |
| BORING USED | D-7 | | | | |
| CAPACITY TO DEMAND RATIO (CDR) | | | | | |
| SLIDING (CDR > 1.0) | N/A | | | | |
| ECCENTRICTY (CDR > 1.0) | N/A | | | | |
| FACTORED BEARING RESISTANCE (PSF) | 6,000 | | | | |
| BEARING RESISTANCE (CDR > 1.0) | 2.3 | | | | |
| OVERALL STABILITY (CDR > 1.0) | 1.12 | | | | |

## GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.

BEVEL EXPOSED EDGES OF CONCRETE ¾", UNLESS NOTED OTHERWISE.

APPLY PROTECTIVE SURFACE TREATMENT TO THE TOP OF THE CONCRETE PATH, FACE OF CURBS AND TOP OF CURBS.

THE 'W614' STATION LINE SIGNIFIES THE WALL ℄ LINE STATIONING ALONG THE FRONT FACE OF R-40-614.

ALL WALL STATIONING AND OFFSETS ARE GIVEN AT THE FRONT FACE OF WALL.

COORDINATE CONSTRUCTION OF THE WALL WITH THE NW ABUTMENT OF OF B-40-889

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE LOCATIONS OF ALL EXPANSION JOINTS. LOCATE THE JOINTS TO COINCIDE WITH THE VERTICAL MSE WALL PANEL JOINTS.

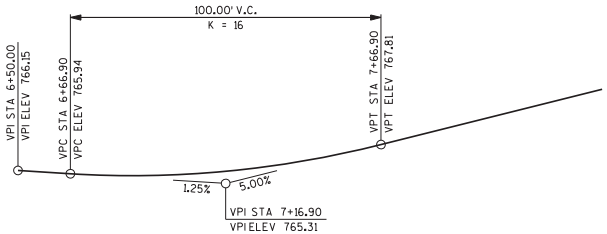
THE PLAN QUANTITY FOR THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD" IS BASED ON A WALL HEIGHT MEASURED FROM THE TOP OF THE WALL TO THE TOP OF THE LEVELING PAD.

THE QUANTITY OF CONCRETE MASONRY FOR THE CAST-IN-PLACE COPING, SLAB, AND CURB IS PAID FOR UNDER THE BID ITEM "CONCRETE MASONRY RETAINING WALLS".

THE QUANTITIES AND REINFORCEMENT DETAILS ARE BASED ON AN ASSUMED WALL PANEL THICKNESS OF 5½" AND A 5" PANEL EMBEDMENT. FOR PANEL THICKNESS AND PANEL EMBEDMENT DIFFERENT THAN THESE VALUES, THE CONTRACTOR SHALL VERIFY REINFORCEMENT BAR DETAILS AND QUANTITIES AND WILL BE RESPONSIBLE FOR ANY QUANTITY VARIATIONS.

FILLER SHALL CONFORM TO THE REQUIREMENTS OF AASHTO DESIGNATION M153, TYPES I, II OR III OR M213.

ALL CONTRACTORS EQUIPEMENT MUST MAINTAIN THE MINIMUM OSHA CLEARANCE FROM ATC AND WE ENERGIES OVERHEAD FACILITIES AS DESCRIBED IN OSHA'S GUIDELINES FOR CLEARANCES. ALL CONTRACTORS SHOULD INCORPORATE ANY ADDITIONAL COSTS ASSOCIATED WITH WORKING AROUND EXISTING ATC AND WE ENERGIES FACILITIES INTO THEIR BID, AS ATC AND WE ENERGIES BELIEVE THEY DO NOT IMPOSE ANY DIRECT CONFLICTS WITH THE SCOPE OF THIS PROJECT.




PROPOSED PROFILE GRADE LINE - DAKOTA STREET PEDESTRIAN BRIDGE

Addendum No. 01
ID 1060-33-81
Added Sheet 6680S
August 17, 2015

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-614

DRAWN BY JRM | PLANS CK'D. PEW

GENERAL NOTES & QUANTITIES

SHEET 2 OF 4

6680S

8

8

Pdf_Dw_HS.plt
PEI_TextSub.tbl

FILE NAME : p:\milwaukee\projects\wisdot\21152.022\dakota\cadd\sheets\081020_gn.dgn PLOT DATE : 1/31/2014 2:32:43 PM PLOT BY : Kurt Feuerstein (Rdwy_Wis) PLOT NAME : PLOT SCALE : 24.0000 sf / IN.

FILE= SCALE =

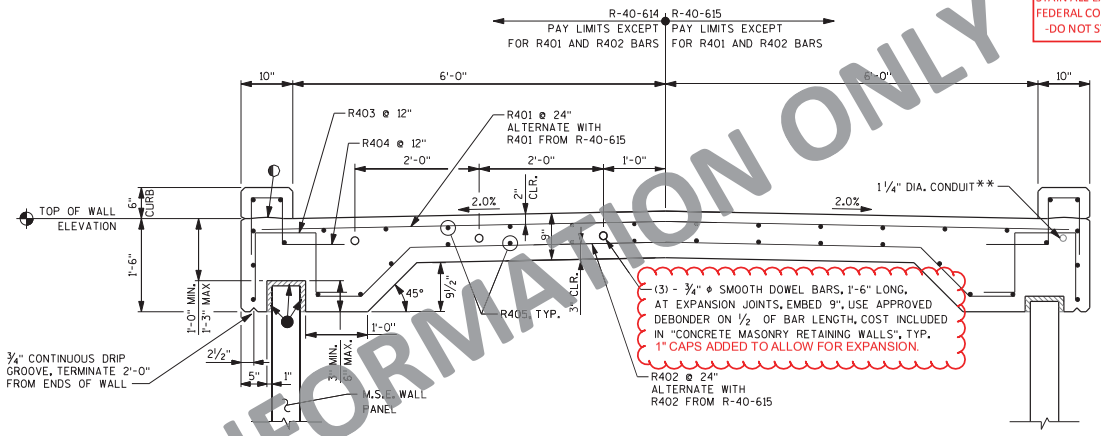
STATE PROJECT NUMBER

1100-03-79

STAIN ALL EXPOSED CONCRETE SURFACES ON R-40-614 BASE COLOR A, FEDERAL COLOR NUMBER 33564, EXCEPT AS FOLLOWS:
-DO NOT STAIN TOP OF SLAB, INSIDE FACE OF CURB OR TOP OF CURB

FOR INFORMATION ONLY

Addendum No. 01
ID 1060-33-81
Added Sheet 6680T
August 17, 2015




TYPICAL SECTION OF SLAB
(LOOKING SOUTH)

◐ OPTIONAL CONST. JOINT - STRIKE OFF AS SHOWN.
● 1" EXPANDED POLYSTYRENE ***

ALL BAR STEEL IN CAST-IN-PLACE CONCRETE SHALL BE EPOXY COATED.

CONCRETE QUANTITY BASED ON 5" PANEL EMBEDMENT & 5 1/2" PANEL THICKNESS.

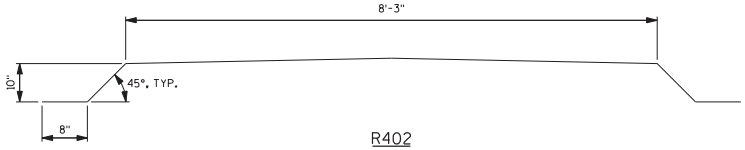
** REFER TO B-40-889 CONDUIT DETAILS FOR EXPANSION FITTING AND BENDING

*** INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY RETAINING WALLS".

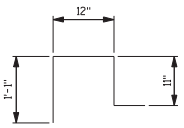
## BILL OF BARS

| BAR MARK | COATED | NO. REQ'D | LENGTH | BENT | BAR SERIES | LOCATION |
|---|---|---|---|---|---|---|
| R401 | X | 66 | 13'-0" | | | SLAB TOP |
| R402 | X | 66 | 11'-11" | ▲ | | SLAB BOTTOM |
| R403 | X | 132 | 3'-6" | ▲ | | SLAB OVER WALL/COPING |
| R404 | X | 132 | 3'-2" | ▲ | | SLAB CURB |
| R405 | X | 19 | 130'-3" | | | SLAB, CURB, COPING LONGITUDINAL |

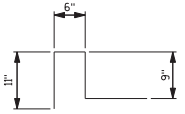
NOTES:
1. THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.
2. ASSUMED PANEL THICKNESS OF 5 1/2" USED WHEN DETERMINING BAR DIMENSIONS.
3. R405 BARS SHALL BE FABRICATED TO MATCH EXPANSION JOINT SPACING, FIELD CUTTING IS NOT ALLOWED.




R402




R403



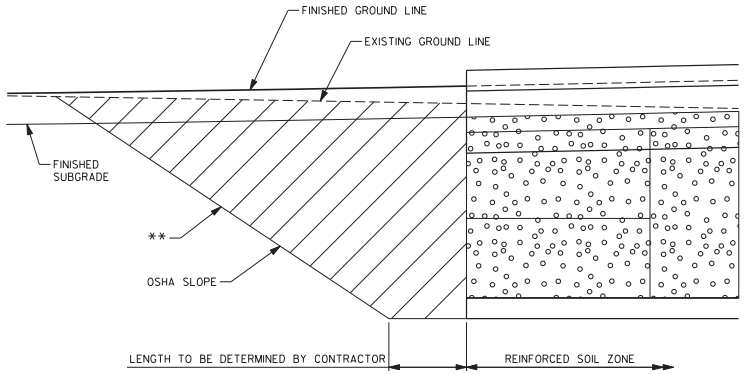

R404

LIMITS OF EXCAVATION AND BACKFILL PAID FOR UNDER "EXCAVATION FOR STRUCTURES RETAINING WALLS (R-40-614)"

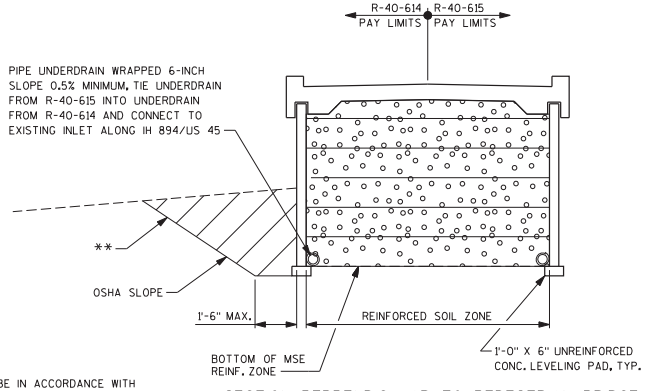
UPPER EXCAVATION LIMITS SHALL BE TO THE EXISTING GROUND LINE AND UPPER BACKFILL LIMITS SHALL BE TO FINISHED SUBGRADE OR FINISHED GROUND LINE.

LIMITS OF EXCAVATION AND BACKFILL PAID FOR UNDER "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD".

UPPER EXCAVATION LIMITS SHALL BE TO THE EXISTING GROUND LINE AND UPPER BACKFILL LIMITS SHALL BE TO THE BOTTOM OF THE SLAB.



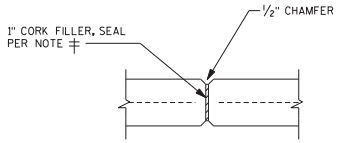

SECTION PARALLEL WITH PEDESTRIAN BRIDGE




SECTION PERPENDICULAR TO PEDESTRIAN BRIDGE

** BACKFILL SHALL BE IN ACCORDANCE WITH SECTION 207 OF THE STANDARD SPECIFICATIONS CONTRACTOR MAY USE EXCAVATED MATERIAL WITH APPROVAL OF THE ENGINEER

## EXCAVATION/BACKFILL DETAIL




SLAB & CURB EXPANSION JOINT

DO NOT RUN BAR STEEL THRU JOINT.
MAXIMUM SPACING OF JOINT = 30'
ADJUST BAR R405 LENGTHS TO MATCH JOINT SPACING

‡ SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONC.)

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-614

DRAWN BY JRM | PLANS CK'D. PEW

WALL AND SLAB DETAILS

SHEET 4 OF 4

6680T

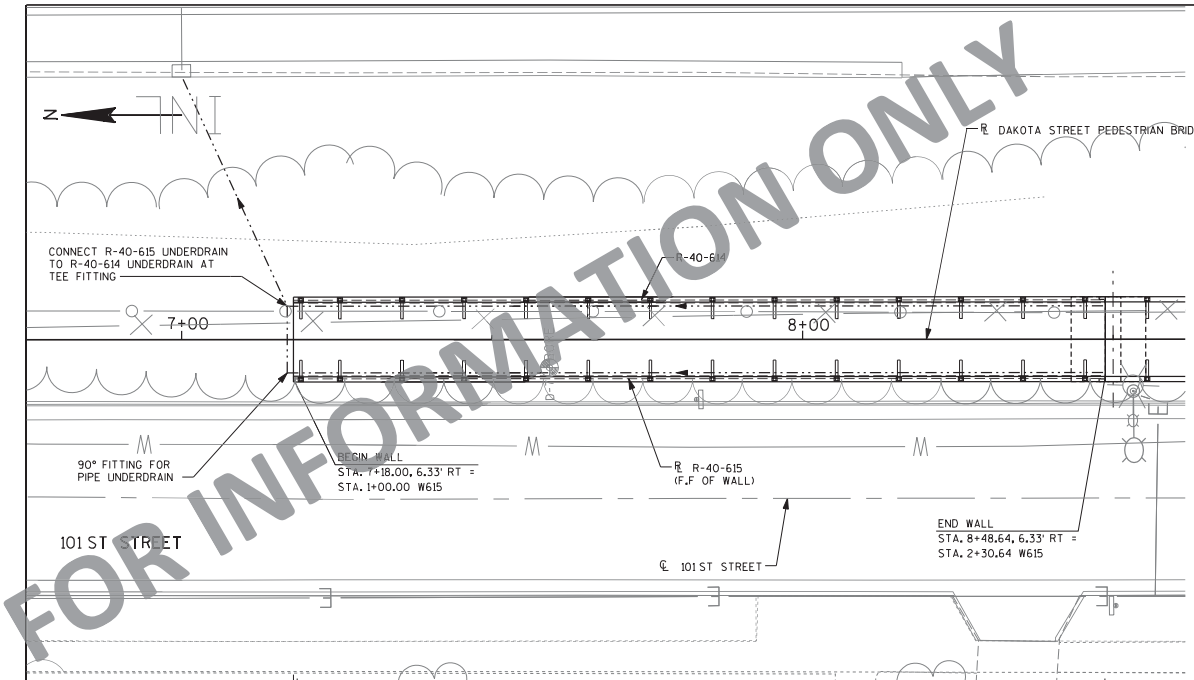
8

8

Pdf_Dw_HS.plt
PEI_TextSub.tbl

FILE NAME : p:\milwaukee\projects\wisdot\21152.022\dakota\cadd\sheets\081450_rt.dgn PLOT DATE : 1/31/2014 2:32:47 PM PLOT BY : Kurt Feuerstein (Rdwy_Wis) PLOT NAME : PLOT SCALE : 24.0000 sf / IN.

FILE= SCALE =




FOR INFORMATION ONLY

STAIN ALL EXPOSED CONCRETE SURFACES ON R-40-615 BASE COLOR A, FEDERAL COLOR NUMBER 33564, EXCEPT AS FOLLOWS:
-DO NOT STAIN TOP OF SLAB, INSIDE FACE OF CURB OR TOP OF CURB

STATE PROJECT NUMBER
1100-03-79

## DESIGN DATA

THE CONTRACTOR SHALL PROVIDE COMPLETE DESIGN, PLANS, DETAILS, SPECIFICATIONS, AND SHOP DRAWINGS FOR THE RETAINING WALLS IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE RETAINING WALL MANUFACTURER SHALL PROVIDE TECHNICAL ASSISTANCE TO THE CONTRACTOR DURING CONSTRUCTION. THE COST OF FURNISHING THESE ITEMS SHALL BE INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD".

PLANS, ELEVATIONS AND DETAILS SHOWN ON THESE DRAWINGS ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS, HEIGHTS, AND DETAILS COMMON TO THE WALL SYSTEM SELECTED. THE CONTRACTOR SHALL VERIFY THAT THE WALL SYSTEM SELECTED WILL CONFORM TO THE REQUIRED ALIGNMENTS AND DETAILS.

THE RETAINING WALL IS TO BE DESIGNED USING THE ELEVATIONS GIVEN ON THIS SHEET.

DESIGN THE RETAINING WALL FOR A LIVE LOAD SURCHARGE OF 100 PSF.

THE MAXIMUM VALUE OF THE ANGLE OF INTERNAL FRICTION OF THE WALL BACKFILL MATERIAL IN THE REINFORCED ZONE SHALL BE ASSUMED TO BE 30° WITHOUT CERTIFIED TEST VALUES.

ALLOWABLE WALL SYSTEMS:
WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD

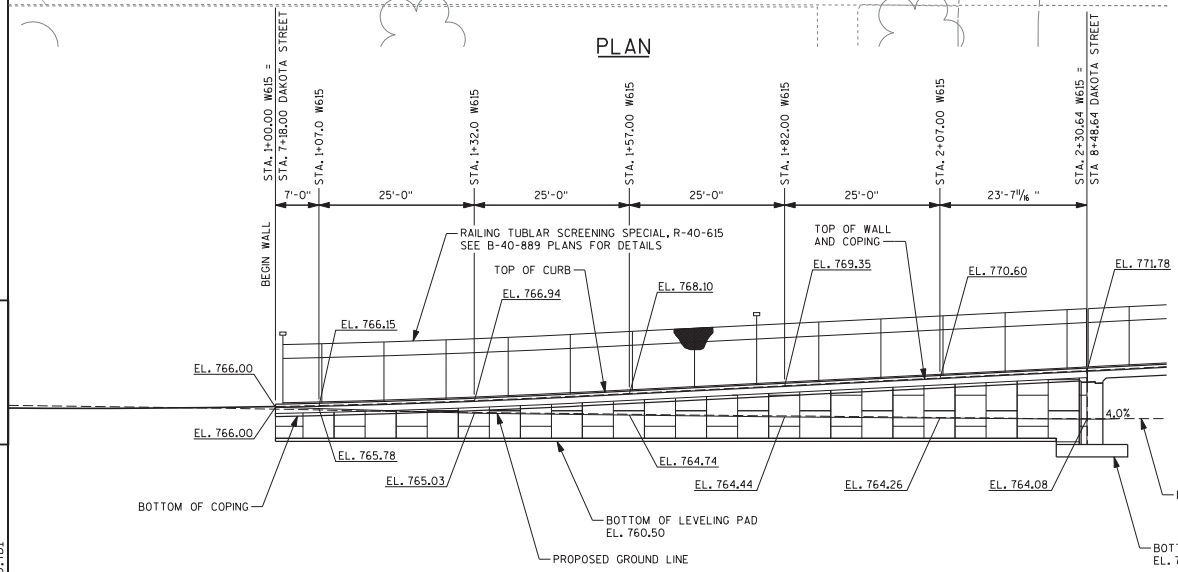
ULTIMATE DESIGN STRESSES:
CONCRETE MASONRY
(PARAPET, SIDEWALK, ANCHOR SLAB AND COPING) f'c = 3,500 PSI
BAR STEEL REINFORCEMENT, GRADE 60 fy = 60,000 PSI

WISCONSIN
KURT E. FEUERSTEIN
E-32444
MILWAUKEE, WI
REGISTERED PROFESSIONAL ENGINEER
2/24/14

## LIST OF DRAWINGS

1. GENERAL PLAN AND ELEVATION
2. GENERAL NOTES AND QUANTITIES
3. SUBSURFACE EXPLORATION
4. WALL AND SLAB DETAILS

## PLAN




## ELEVATION
LOOKING EAST




Addendum No. 01
ID 1060-33-81
Added Sheet 6680U
August 17, 2015

BUREAU OF STRUCTURES CONTACT;
WILLIAM DREHER (608-266-8489)
CONSULTANT CONTACT;
KURT FEUERSTEIN (262-901-2508)

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

PATRICK ENGINEERING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher 2/25/14
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE R-40-615

DAKOTA STREET PED BRIDGE OVER I-894/US

| COUNTY | TOWN/CITY/VILLAGE |
|---|---|
| MILWAUKEE | WEST ALLIS |

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

| DESIGNED BY | PEW | DESIGN CK'D. | DMM | DRAWN BY | JRM | PLANS CK'D. | KEF |
|---|---|---|---|---|---|---|---|

GENERAL PLAN AND ELEVATION

SHEET 1 OF 4

6680U

8

8

Pdf_Dw_HS.plt
PEI_TextSub.tbl

FILE NAME : p:\milwaukee\projects\wisdot\21152.022\dakota\cadd\sheets\082001_gp.dgn PLOT DATE : 1/31/2014 2:33:09 PM PLOT BY : Kurt Feuerstein (Rdwy_Wis) PLOT NAME : PLOT SCALE : 20.0000 sf / IN.

| STATE PROJECT NUMBER |
|---|
| 1100-03-79 |

## TOTAL ESTIMATED QUANTITIES

| | ITEM NO. | BID ITEM | UNIT | TOTAL |
|---|---|---|---|---|
| | 206.3000 | EXCAVATION FOR STRUCTURES RETAINING WALLS (R-40-615) | L.S. | 1.0 |
| | 502.3200 | PROTECTIVE SURFACE TREATMENT | SY | 110.0 |
| ** | 504.0500 | CONCRETE MASONRY RETAINING WALLS | CY | 35.0 |
| ** | 505.0615 | BAR STEEL REINFORCEMENT HS COATED RETAINING WALLS | LB | 3340.0 |
| | 532.0500.S | WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD | SF | 996 |
| | 612.0406 | PIPE UNDERDRAIN WRAPPED 6-INCH | LF | 143.0 |
| | SPV.0105.05 | RAILING TUBULAR SCREENING SPECIAL R-40-615 | | 1.0 |
| | | NON-BID ITEMS | | |
| | | EXPANDED POLYSTYRENE | SIZE | 1" |
| | | NON-BITUMINOUS JOINT FILLER | SIZE | 1" |
| | | CORK FILLER | SIZE | 1" |

ALL ITEMS ARE CATEGORY 0040

** QUANTITY INCLUDES SLAB AND CURB

FOR INFORMATION ONLY

## SOIL PARAMETERS

| SOIL DESCRIPTIONS & STRATUM LOCATIONS | FRICTION ANGLE (DEGREES) | COHESION (PSF) | UNIT WEIGHT (PCF) |
|---|---|---|---|
| GRANULAR BACKFILL WITHIN THE WALL IN THE WALL REINFORCING ZONE | | 0 | 120 |
| BORING D-7, STA. 7+60.00- LT 25' | | | |
| FILL, SAND, GRAVEL AND CLAY, BROWN, MOIST. ELEVATION 764.7 FEET TO 761.7 FEET | 21 | 0 | 130 |
| GRAY LEAN CLAY AND TRACE SAND, VERY STIFF ELEVATION 761.7 FEET TO 729.7 FEET | 21 | 0 | 130 |

## WALL EXTERNAL AND OVERALL STABILITY EVALUATION

| DIMENSIONS | | | | | |
|---|---|---|---|---|---|
| WALL HEIGHT (FEET)[1] | 11.3 | | | | |
| EXPOSED WALL HEIGHT (FEET)[2] | 7.6 | | | | |
| MINIMUM LENGTH OF REINFORCEMENT (FEET) | 8.0 | | | | |
| WALL STATION | 1+00.00 | | | | |
| BORING USED | D-7 | | | | |
| **CAPACITY TO DEMAND RATIO (CDR)** | | | | | |
| SLIDING (CDR > 1.0) | N/A | | | | |
| ECCENTRICTY (CDR > 1.0) | N/A | | | | |
| FACTORED BEARING RESISTANCE (PSF) | 6,000 | | | | |
| BEARING RESISTANCE (CDR > 1.0) | 2.3 | | | | |
| OVERALL STABILITY (CDR > 1.0) | 1.12 | | | | |

## GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.

BEVEL EXPOSED EDGES OF CONCRETE ¾", UNLESS NOTED OTHERWISE.

APPLY PROTECTIVE SURFACE TREATMENT TO THE TOP OF THE CONCRETE PATH, FACE OF CURBS AND TOP OF CURBS.

THE 'W615' STATION LINE SIGNIFIES THE WALL ℄ LINE STATIONING ALONG THE FRONT FACE OF R-40-615.

ALL WALL STATIONING AND OFFSETS ARE GIVEN AT THE FRONT FACE OF WALL.

COORDINATE CONSTRUCTION OF THE WALL WITH THE NW ABUTMENT OF OF B-40-889

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE LOCATIONS OF ALL EXPANSION JOINTS. LOCATE THE JOINTS TO COINCIDE WITH THE VERTICAL MSE WALL PANEL JOINTS.

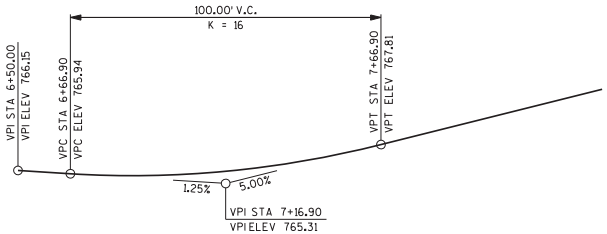
THE PLAN QUANTITY FOR THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD" IS BASED ON A WALL HEIGHT MEASURED FROM THE TOP OF THE WALL TO THE TOP OF THE LEVELING PAD.

THE QUANTITY OF CONCRETE MASONRY FOR THE CAST-IN-PLACE COPING, SLAB, AND CURB IS PAID FOR UNDER THE BID ITEM "CONCRETE MASONRY RETAINING WALLS".

THE QUANTITIES AND REINFORCEMENT DETAILS ARE BASED ON AN ASSUMED WALL PANEL THICKNESS OF 5½" AND A 5" PANEL EMBEDMENT. FOR PANEL THICKNESS AND PANEL EMBEDMENT DIFFERENT THAN THESE VALUES, THE CONTRACTOR SHALL VERIFY REINFORCEMENT BAR DETAILS AND QUANTITIES AND WILL BE RESPONSIBLE FOR ANY QUANTITY VARIATIONS.

FILLER SHALL CONFORM TO THE REQUIREMENTS OF AASHTO DESIGNATION M153, TYPES I, II OR III OR M213.

ALL CONTRACTORS EQUIPEMENT MUST MAINTAIN THE MINIMUM OSHA CLEARANCE FROM ATC AND WE ENERGIES OVERHEAD FACILITIES AS DESCRIBED IN OSHA'S GUIDELINES FOR CLEARANCES. ALL CONTRACTORS SHOULD INCORPORATE ANY ADDITIONAL COSTS ASSOCIATED WITH WORKING AROUND EXISTING ATC AND WE ENERGIES FACILITIES INTO THEIR BID, AS ATC AND WE ENERGIES BELIEVE THEY DO NOT IMPOSE ANY DIRECT CONFLICTS WITH THE SCOPE OF THIS PROJECT.




PROPOSED PROFILE GRADE LINE - DAKOTA STREET PEDESTRIAN BRIDGE

Addendum No. 01
ID 1060-33-81
Added Sheet 6680V
August 17, 2015

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-615

DRAWN BY JRM | PLANS CK'D. PEW

GENERAL NOTES & QUANTITIES

SHEET OF

6680V

8

8

Pdf_pw_HS.plt
PEI_TEXTSUB.TBL

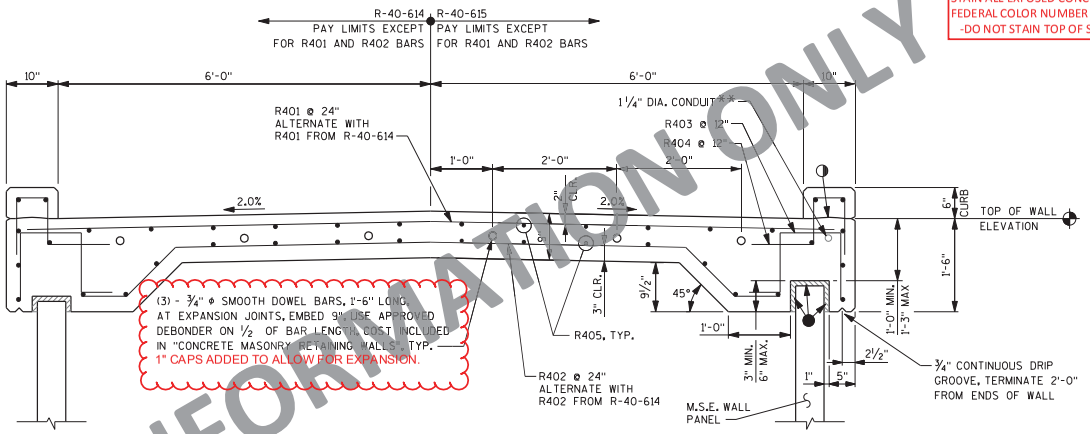
FILE NAME : P:\Milwaukee\Projects\WisDOT\21152.022\Dakota\CADD\Sheets\082020_gn.dgn PLOT DATE : 2/24/2014 4:46:24 PM PLOT BY : Kurt Feuerstein (Rdwy_Wis) PLOT NAME : PLOT SCALE : 24.0000 sf / IN.

FILE=
SCALE =

| STATE PROJECT NUMBER |
|---|
| 1100-03-79 |

STAIN ALL EXPOSED CONCRETE SURFACES ON R-40-615 BASE COLOR A, FEDERAL COLOR NUMBER 33564, EXCEPT AS FOLLOWS:
-DO NOT STAIN TOP OF SLAB, INSIDE FACE OF CURB OR TOP OF CURB

FOR INFORMATION ONLY




## TYPICAL SECTION OF SLAB

(LOOKING SOUTH)

◐ OPTIONAL CONST. JOINT - STRIKE OFF AS SHOWN.

● 1" EXPANDED POLYSTYRENE ***

ALL BAR STEEL IN CAST-IN-PLACE CONCRETE SHALL BE EPOXY COATED.

CONCRETE QUANTITY BASED ON 5" PANEL EMBEDMENT & 5½" PANEL THICKNESS.

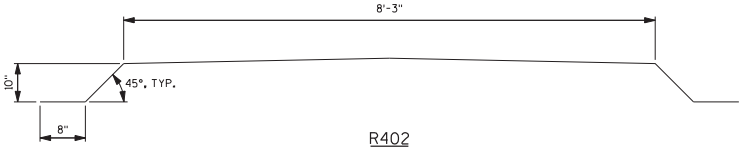
** REFER TO B-40-889 CONDUIT DETAILS FOR EXPANSION FITTING AND BENDING

*** INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY RETAINING WALLS".

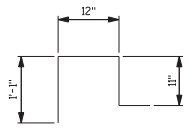
## BILL OF BARS

| BAR MARK | COATED | NO. REQ'D | LENGTH | BENT | BAR SERIES | LOCATION |
|---|---|---|---|---|---|---|
| R401 | X | 66 | 13'-0" | | | SLAB TOP |
| R402 | X | 66 | 11'-11" | ▲ | | SLAB BOTTOM |
| R403 | X | 132 | 3'-6" | ▲ | | SLAB OVER WALL/COPING |
| R404 | X | 132 | 3'-2" | ▲ | | SLAB CURB |
| R405 | X | 19 | 130'-3" | | | SLAB, CURB, COPING LONGITUDINAL |

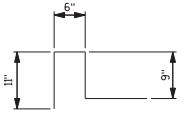
NOTE:
1. THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.
2. ASSUMED PANEL THICKNESS OF 5 1/2" USED WHEN DETERMINING BAR DIMENSIONS.
3. R405 BARS SHALL BE FABRICATED TO MATCH EXPANSION JOINT SPACING, FIELD CUTTING IS NOT ALLOWED.



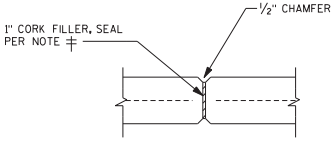

R402




R403



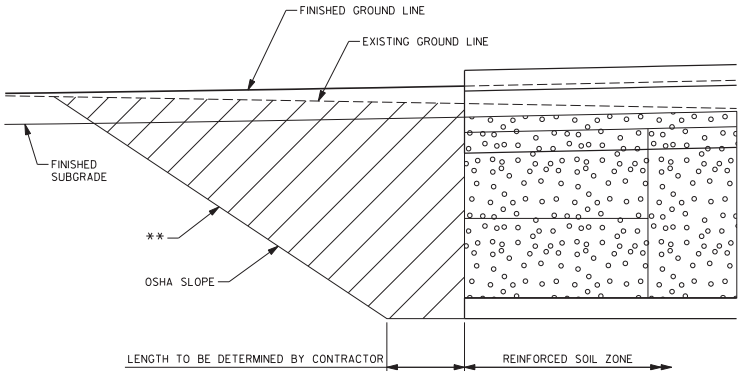

R404




## SLAB & CURB EXPANSION JOINT

DO NOT RUN BAR STEEL THRU JOINT.
MAXIMUM SPACING OF JOINT = 30'
ADJUST BAR R405 LENGTHS TO MATCH JOINT SPACING

‡ SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONC.)




SECTION PARALLEL WITH PEDESTRIAN BRIDGE

LIMITS OF EXCAVATION AND BACKFILL PAID FOR UNDER "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD".

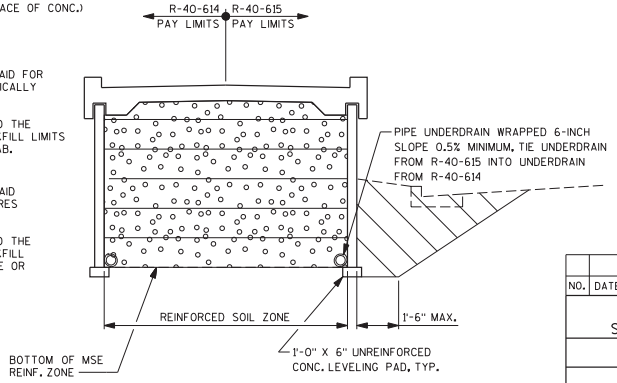
UPPER EXCAVATION LIMITS SHALL BE TO THE EXISTING GROUND LINE AND UPPER BACKFILL LIMITS SHALL BE TO THE BOTTOM OF THE SLAB.

LIMITS OF EXCAVATION AND BACKFILL PAID FOR UNDER "EXCAVATION FOR STRUCTURES RETAINING WALLS (R-40-614)"

UPPER EXCAVATION LIMITS SHALL BE TO THE EXISTING GROUND LINE AND UPPER BACKFILL LIMITS SHALL BE TO FINISHED SUBGRADE OR FINISHED GROUND LINE.

** BACKFILL SHALL BE IN ACCORDANCE WITH SECTION 207 OF THE STANDARD SPECIFICATIONS CONTRACTOR MAY USE EXCAVATED MATERIAL WITH APPROVAL OF THE ENGINEER

## EXCAVATION/BACKFILL DETAIL




SECTION PERPENDICULAR TO PEDESTRIAN BRIDGE

Addendum No. 01
ID 1060-33-81
Added Sheet 6680W
August 17, 2015

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-615

DRAWN BY JRM | PLANS CK'D. PEW

WALL AND SLAB DETAILS

SHEET 4 OF 4

6680W

8

8

Pdf_Dw_HS.plt
PEI_TextSub.tbl

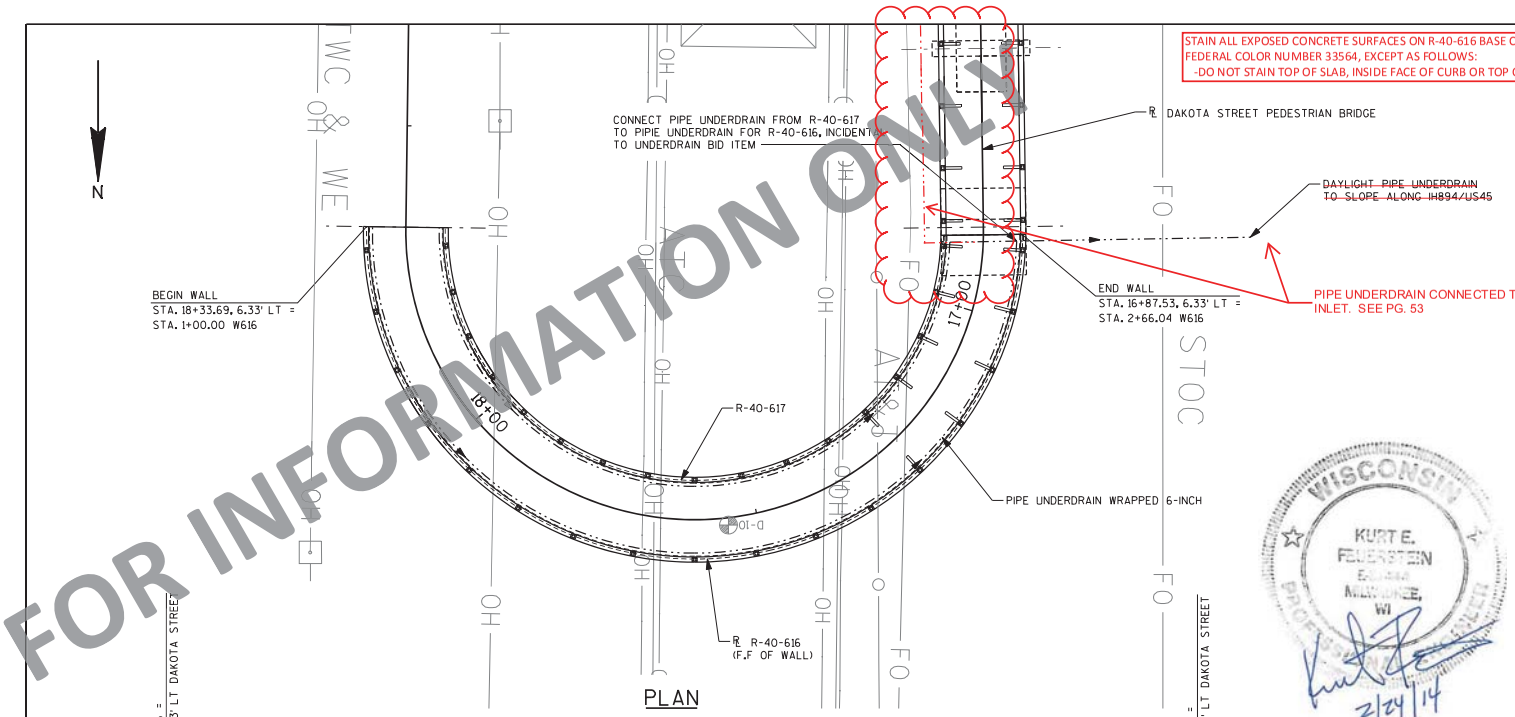
FILE NAME : p:\milwaukee\projects\wisdot\21152.022\ddkota\cadd\sheets\082450_rt.dgn PLOT DATE : 1/31/2014 2:33:14 PM PLOT BY : Kurt Feuerstein (Rdwy_Wis) PLOT NAME : PLOT SCALE : 24.0000 sf / IN.

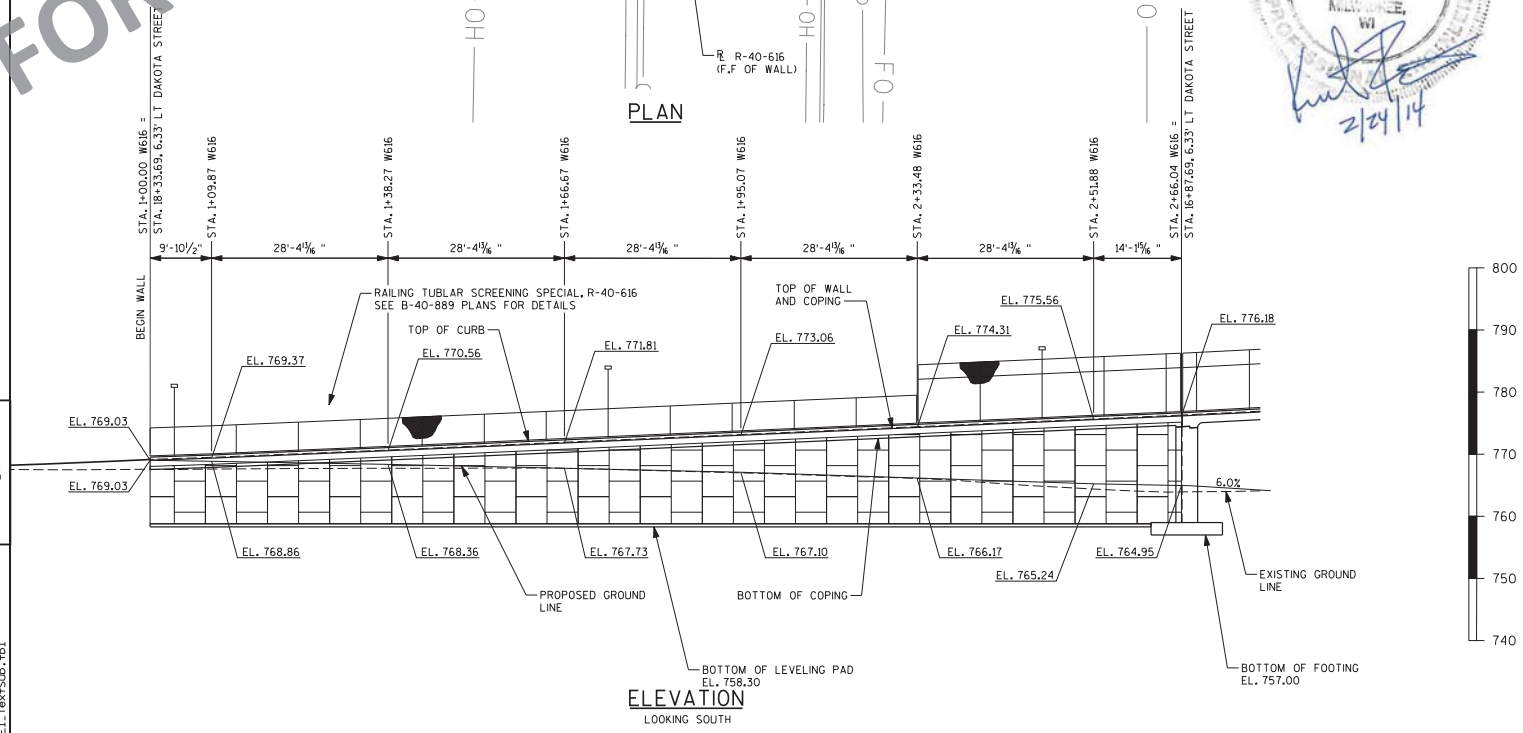
FILE= SCALE =

FOR INFORMATION ONLY

STAIN ALL EXPOSED CONCRETE SURFACES ON R-40-616 BASE COLOR A, FEDERAL COLOR NUMBER 33564, EXCEPT AS FOLLOWS:
-DO NOT STAIN TOP OF SLAB, INSIDE FACE OF CURB OR TOP OF CURB

| STATE PROJECT NUMBER |
|---|
| 1100-03-79 |




## ELEVATION
LOOKING SOUTH

## DESIGN DATA

THE CONTRACTOR SHALL PROVIDE COMPLETE DESIGN, PLANS, DETAILS, SPECIFICATIONS, AND SHOP DRAWINGS FOR THE RETAINING WALLS IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE RETAINING WALL MANUFACTURER SHALL PROVIDE TECHNICAL ASSISTANCE TO THE CONTRACTOR DURING CONSTRUCTION. THE COST OF FURNISHING THESE ITEMS SHALL BE INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD".

PLANS, ELEVATIONS AND DETAILS SHOWN ON THESE DRAWINGS ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS, HEIGHTS, AND DETAILS COMMON TO THE WALL SYSTEM SELECTED. THE CONTRACTOR SHALL VERIFY THAT THE WALL SYSTEM SELECTED WILL CONFORM TO THE REQUIRED ALIGNMENTS AND DETAILS.

THE RETAINING WALL IS TO BE DESIGNED USING THE ELEVATIONS GIVEN ON THIS SHEET.

DESIGN THE RETAINING WALL FOR A LIVE LOAD SURCHARGE OF 100 PSF.

THE MAXIMUM VALUE OF THE ANGLE OF INTERNAL FRICTION OF THE WALL BACKFILL MATERIAL IN THE REINFORCED ZONE SHALL BE ASSUMED TO BE 30° WITHOUT CERTIFIED TEST VALUES.

ALLOWABLE WALL SYSTEMS;
WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD

ULTIMATE DESIGN STRESSES;
CONCRETE MASONRY
(PARAPET, SIDEWALK, ANCHOR SLAB AND COPING) f'c = 3,500 PSI
BAR STEEL REINFORCEMENT, GRADE 60 fy = 60,000 PSI

WISCONSIN
KURT E. FEUERSTEIN
E-32462
MILWAUKEE, WI
2/24/14

Addendum No. 01
ID 1060-33-81
Added Sheet 6680X
August 17, 2015

## LIST OF DRAWINGS

1. GENERAL PLAN AND ELEVATION
2. GENERAL NOTES AND QUANTITIES
3. SUBSURFACE EXPLORATION
4. WALL AND SLAB DETAILS


BUREAU OF STRUCTURES CONTACT;
WILLIAM DREHER (608-266-8489)
CONSULTANT CONTACT;
KURT FEUERSTEIN (262-901-2508)


| NO. | DATE | REVISION | BY |
|---|---|---|---|

PATRICK ENGINEERING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher 2/25/14
CHIEF STRUCTURES DESIGN ENGINEER DATE

# STRUCTURE R-40-616

DAKOTA STREET PED BRIDGE OVER I-894/US

| COUNTY | TOWN/CITY/VILLAGE |
|---|---|
| MILWAUKEE | WEST ALLIS |

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

| DESIGNED BY | PEW | DESIGN CK'D. | DMM | DRAWN BY | JRM | PLANS CK'D. | KEF |
|---|---|---|---|---|---|---|---|

GENERAL PLAN AND ELEVATION

SHEET 1 OF 4

6680X

8

8

Pdf_Dw_HS.plt
PEI_TextSub.tbl

FILE NAME : p:\milwaukee\projects\wisdot\21152.022\dakota\cadd\sheets\083001_gp.dgn PLOT DATE : 1/31/2014 2:35:15 PM PLOT BY : Kurt Feuerstein (Rdwy_Wis) PLOT NAME : PLOT SCALE : 20.0000 sf / IN.

| STATE PROJECT NUMBER |
|---|
| 1100-03-79 |

## TOTAL ESTIMATED QUANTITIES

| | ITEM NO. | BID ITEM | UNIT | TOTAL |
|---|---|---|---|---|
| | 206.3000 | EXCAVATION FOR STRUCTURES RETAINING WALLS (R-40-616) | L.S. | 1.0 |
| | 502.3200 | PROTECTIVE SURFACE TREATMENT | SY | 129.0 |
| ** | 504.0500 | CONCRETE MASONRY RETAINING WALLS | CY | 43.0 |
| ** | 505.0615 | BAR STEEL REINFORCEMENT HS COATED RETAINING WALLS | LB | 4020.0 |
| | 532.0500.S | WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD | SF | 2282 |
| | 612.0406 | PIPE UNDERDRAIN WRAPPED 6-INCH | LF | 200.0 |
| | 652.0125 | CONDUIT RIGID METALLIC 1 1/4-INCH | LF | |
| | 652.0215 | CONDUIT RIGID NONMETALLIC SCHEDULE 40 1 1/4-INCH | LF | 15 |
| | SPV.0105.06 | RAILING TUBULAR SCREENING SPECIAL R-40-616 | L.S. | |
| | | NON-BID ITEMS | | |
| | | EXPANDED POLYSTYRENE | SIZE | 1" |
| | | NON-BITUMINOUS JOINT FILLER | SIZE | 1" |
| | | CORK FILLER | SIZE | 1" |

ALL ITEMS ARE CATEGORY 0050

** QUANTITY INCLUDES SLAB AND CURB

FOR INFORMATION ONLY

## SOIL PARAMETERS

| SOIL DESCRIPTIONS & STRATUM LOCATIONS | FRICTION ANGLE (DEGREES) | COHESION (PSF) | UNIT WEIGHT (PCF) |
|---|---|---|---|
| GRANULAR BACKFILL WITHIN THE WALL IN THE WALL REINFORCING ZONE | | 0 | 120 |
| BORING D-10, STA. 17+50- LT 0.0 | | | |
| FILL, GRAVEL AND CLAY, BROWN, MOIST. ELEVATION 766.6 FEET TO 759.6 FEET | 21 | 0 | 130 |
| GRAY LEAN CLAY AND TRACE SAND, VERY STIFF ELEVATION 759.6 FEET TO 731.6 FEET | 21 | 0 | 130 |

## WALL EXTERNAL AND OVERALL STABILITY EVALUATION

| DIMENSIONS | | | | | |
|---|---|---|---|---|---|
| WALL HEIGHT (FEET)[1] | 17.9 | | | | |
| EXPOSED WALL HEIGHT (FEET)[2] | 12.2 | | | | |
| MINIMUM LENGTH OF REINFORCEMENT (FEET) | 11. | | | | |
| WALL STATION | 2+66.04 | | | | |
| BORING USED | D-10 | | | | |
| **CAPACITY TO DEMAND RATIO (CDR)** | | | | | |
| SLIDING (CDR > 1.0) | N/A | | | | |
| ECCENTRICTY (CDR > 1.0) | N/A | | | | |
| FACTORED BEARING RESISTANCE (PSF) | 6,000 | | | | |
| BEARING RESISTANCE (CDR > 1.0) | 1.65 | | | | |
| OVERALL STABILITY (CDR > 1.0) | 1.12 | | | | |

## GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.

BEVEL EXPOSED EDGES OF CONCRETE ¾", UNLESS NOTED OTHERWISE.

APPLY PROTECTIVE SURFACE TREATMENT TO THE TOP OF THE CONCRETE PATH, FACE OF CURBS AND TOP OF CURBS.

THE 'W616' STATION LINE SIGNIFIES THE WALL ℄ LINE STATIONING ALONG THE FRONT FACE OF R-40-616.

ALL WALL STATIONING AND OFFSETS ARE GIVEN AT THE FRONT FACE OF WALL.

COORDINATE CONSTRUCTION OF THE WALL WITH THE NE ABUTMENT OF OF B-40-889

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE LOCATIONS OF ALL EXPANSION JOINTS. LOCATE THE JOINTS TO COINCIDE WITH THE VERTICAL MSE WALL PANEL JOINTS.

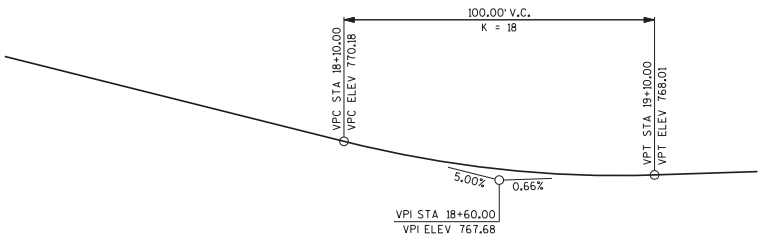
THE PLAN QUANTITY FOR THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD" IS BASED ON A WALL HEIGHT MEASURED FROM THE TOP OF THE WALL TO THE TOP OF THE LEVELING PAD.

THE QUANTITY OF CONCRETE MASONRY FOR THE CAST-IN-PLACE COPING, SLAB, AND CURB IS PAID FOR UNDER THE BID ITEM "CONCRETE MASONRY RETAINING WALLS".

THE QUANTITIES AND REINFORCEMENT DETAILS ARE BASED ON AN ASSUMED WALL PANEL THICKNESS OF 5½" AND A 5" PANEL EMBEDMENT. FOR PANEL THICKNESS AND PANEL EMBEDMENT DIFFERENT THAN THESE VALUES, THE CONTRACTOR SHALL VERIFY REINFORCEMENT BAR DETAILS AND QUANTITIES AND WILL BE RESPONSIBLE FOR ANY QUANTITY VARIATIONS.

FILLER SHALL CONFORM TO THE REQUIREMENTS OF AASHTO DESIGNATION M153, TYPES I, II OR III OR M213.

ALL CONTRACTORS EQUIPEMENT MUST MAINTAIN THE MINIMUM OSHA CLEARANCE FROM ATC AND WE ENERGIES OVERHEAD FACILITIES AS DESCRIBED IN OSHA'S GUIDELINES FOR CLEARANCES. ALL CONTRACTORS SHOULD INCORPORATE ANY ADDITIONAL COSTS ASSOCIATED WITH WORKING AROUND EXISTING ATC AND WE ENERGIES FACILITIES INTO THEIR BID, AS ATC AND WE ENERGIES BELIEVE THEY DO NOT IMPOSE ANY DIRECT CONFLICTS WITH THE SCOPE OF THIS PROJECT.




PROPOSED PROFILE GRADE LINE - DAKOTA STREET PEDESTRIAN BRIDGE

Addendum No. 01
ID 1060-33-81
Added Sheet 6680Y
August 17, 2015

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-616

DRAWN BY JRM | PLANS CK'D. PEW

GENERAL NOTES & QUANTITIES

SHEET OF

6680Y

8

8

Pdf_bw_HS.plt
PEI_TEXTSUB.TBL

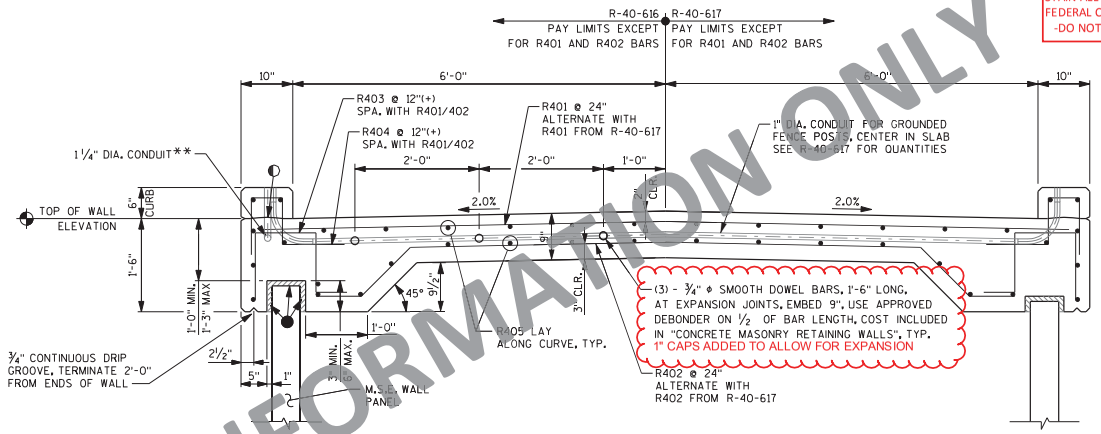
FILE NAME : P:\Milwaukee\Projects\WisDOT\21152.022\Dakota\CADD\Sheets\083020_gn.dgn PLOT DATE : 2/24/2014 4:48:30 PM PLOT BY : Kurt Feuerstein (Rdwy_Wis) PLOT NAME : PLOT SCALE : 24.0000 sf / IN.

FILE=
SCALE =

FOR INFORMATION ONLY

| STATE PROJECT NUMBER |
|---|
| 1100-03-79 |

STAIN ALL EXPOSED CONCRETE SURFACES ON R-40-616 BASE COLOR A, FEDERAL COLOR NUMBER 33564, EXCEPT AS FOLLOWS:
-DO NOT STAIN TOP OF SLAB, INSIDE FACE OF CURB OR TOP OF CURB




TYPICAL SECTION OF SLAB
(LOOKING SOUTH)

◐ OPTIONAL CONST. JOINT - STRIKE OFF AS SHOWN.
● 1" EXPANDED POLYSTYRENE ***

ALL BAR STEEL IN CAST-IN-PLACE CONCRETE SHALL BE EPOXY COATED.

CONCRETE QUANTITY BASED ON 5" PANEL EMBEDMENT & 5½" PANEL THICKNESS.

** REFER TO B-40-889 CONDUIT DETAILS FOR EXPANSION FITTING AND BENDING

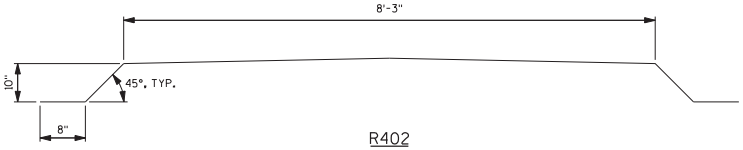
*** INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY RETAINING WALLS".

Addendum No. 01
ID 1060-33-81
Added Sheet 6680Z
August 17, 2015

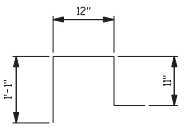
## BILL OF BARS

| BAR MARK | COATED | NO. REQ'D | LENGTH | BENT | BAR SERIES | LOCATION |
|---|---|---|---|---|---|---|
| R401 | X | 74 | 13'-0" | | | SLAB TOP |
| R402 | X | 74 | 11'-11" | ▲ | | SLAB BOTTOM |
| R403 | X | 148 | 3'-6" | ▲ | | SLAB OVER WALL/COPING |
| R404 | X | 148 | 3'-2" | ▲ | | SLAB CURB |
| R405 | X | 19 | 167'-2" | | | SLAB, CURB, COPING LONGITUDINAL |

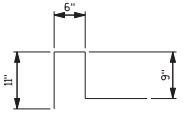
NOTES:
1. THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.
2. ASSUMED PANEL THICKNESS OF 5 1/2" USED WHEN DETERMINING BAR DIMENSIONS.
3. R405 BARS SHALL BE FABRICATED TO MATCH EXPANSION JOINT SPACING, FIELD CUTTING IS NOT ALLOWED.




R402




R403



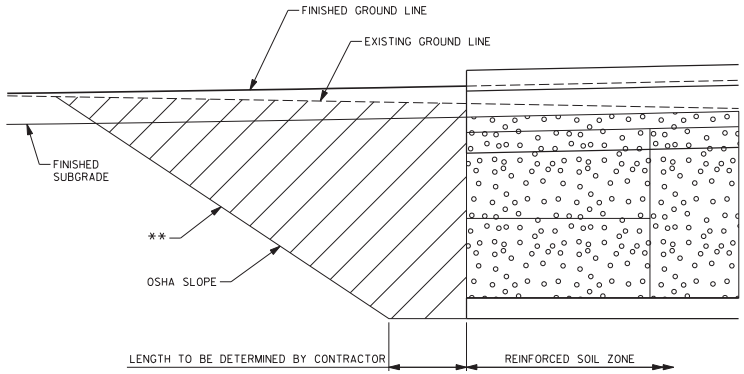

R404

LIMITS OF EXCAVATION AND BACKFILL PAID FOR UNDER "EXCAVATION FOR STRUCTURES RETAINING WALLS (R-40-614)"

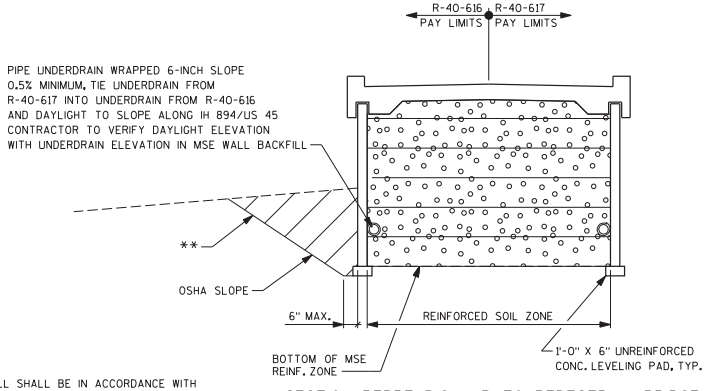
UPPER EXCAVATION LIMITS SHALL BE TO THE EXISTING GROUND LINE AND UPPER BACKFILL LIMITS SHALL BE TO FINISHED SUBGRADE OR FINISHED GROUND LINE.

LIMITS OF EXCAVATION AND BACKFILL PAID FOR UNDER "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD".

UPPER EXCAVATION LIMITS SHALL BE TO THE EXISTING GROUND LINE AND UPPER BACKFILL LIMITS SHALL BE TO THE BOTTOM OF THE SLAB.



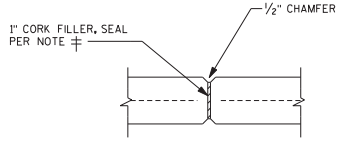

SECTION PARALLEL WITH PEDESTRIAN BRIDGE




SECTION PERPENDICULAR TO PEDESTRIAN BRIDGE

** BACKFILL SHALL BE IN ACCORDANCE WITH SECTION 207 OF THE STANDARD SPECIFICATIONS CONTRACTOR MAY USE EXCAVATED MATERIAL WITH APPROVAL OF THE ENGINEER

EXCAVATION/BACKFILL DETAIL




SLAB & CURB EXPANSION JOINT

DO NOT RUN BAR STEEL THRU JOINT.
MAXIMUM SPACING OF JOINT = 30'
ADJUST BAR R405 LENGTHS TO MATCH JOINT SPACING

‡ SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONC.)

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-616

DRAWN BY JRM | PLANS CK'D. PEW

WALL AND SLAB DETAILS

SHEET 4 OF 4

6680Z

8

8

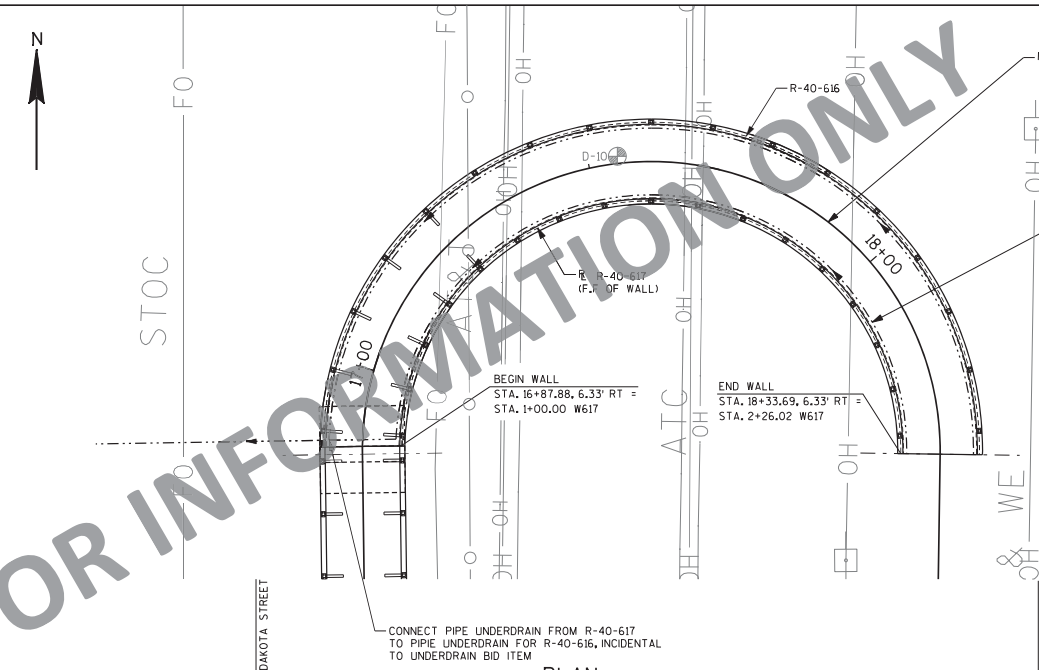
Pdf_Dw_HS.plt
PEI_TextSub.tbl

FILE NAME : p:\milwaukee\projects\wisdot\21152.022\ddkota\cadd\sheets\083450_rt.dgn PLOT DATE : 1/31/2014 2:35:21 PM PLOT BY : Kurt Feuerstein (Rdwy_Wis) PLOT NAME : PLOT SCALE : 24.0000 sf / IN.

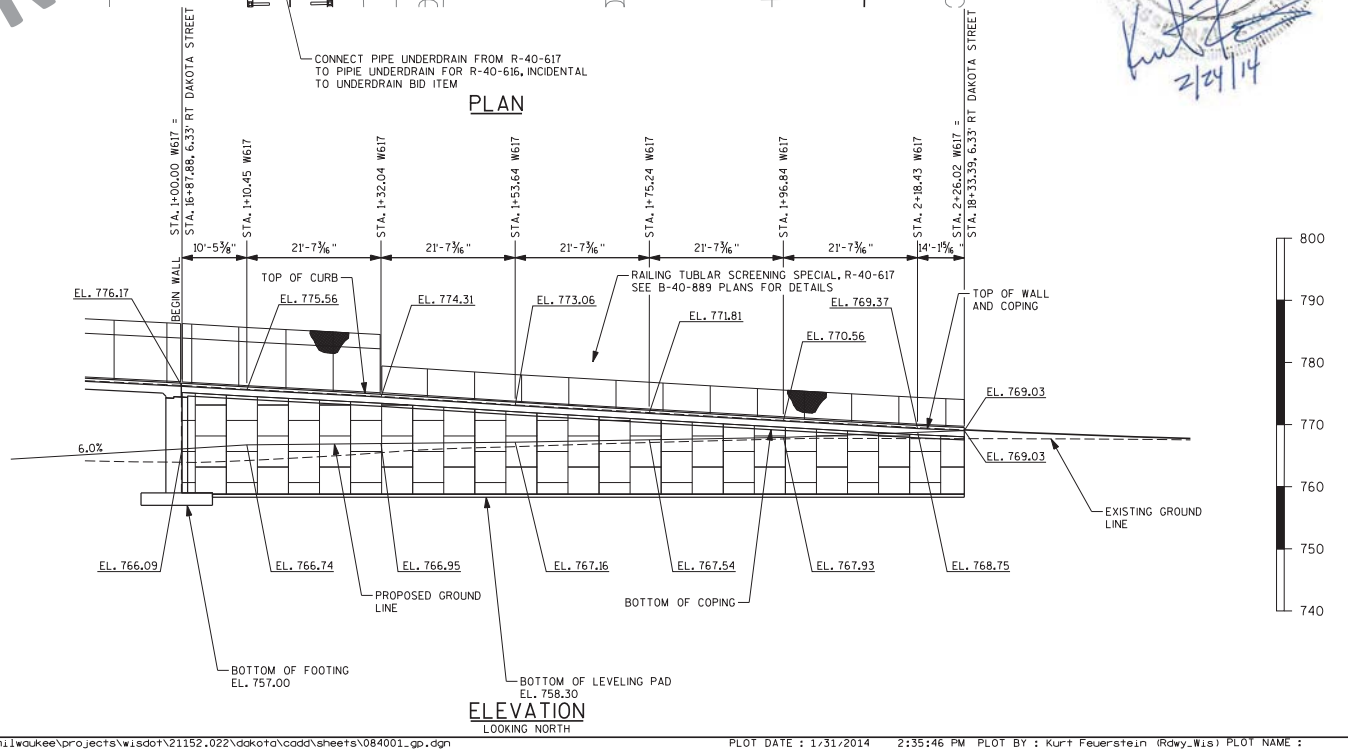
FILE=
SCALE =

FOR INFORMATION ONLY

| STATE PROJECT NUMBER |
|---|
| 1100-03-79 |




PLAN




ELEVATION
LOOKING NORTH

STAIN ALL EXPOSED CONCRETE SURFACES ON R-40-617 BASE COLOR A, FEDERAL COLOR NUMBER 33564, EXCEPT AS FOLLOWS:
-DO NOT STAIN TOP OF SLAB, INSIDE FACE OF CURB OR TOP OF CURB

## DESIGN DATA

THE CONTRACTOR SHALL PROVIDE COMPLETE DESIGN, PLANS, DETAILS, SPECIFICATIONS, AND SHOP DRAWINGS FOR THE RETAINING WALLS IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE RETAINING WALL MANUFACTURER SHALL PROVIDE TECHNICAL ASSISTANCE TO THE CONTRACTOR DURING CONSTRUCTION. THE COST OF FURNISHING THESE ITEMS SHALL BE INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD".

PLANS, ELEVATIONS AND DETAILS SHOWN ON THESE DRAWINGS ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS, HEIGHTS, AND DETAILS COMMON TO THE WALL SYSTEM SELECTED. THE CONTRACTOR SHALL VERIFY THAT THE WALL SYSTEM SELECTED WILL CONFORM TO THE REQUIRED ALIGNMENTS AND DETAILS.

THE RETAINING WALL IS TO BE DESIGNED USING THE ELEVATIONS GIVEN ON THIS SHEET.

DESIGN THE RETAINING WALL FOR A LIVE LOAD SURCHARGE OF 100 PSF.

THE MAXIMUM VALUE OF THE ANGLE OF INTERNAL FRICTION OF THE WALL BACKFILL MATERIAL IN THE REINFORCED ZONE SHALL BE ASSUMED TO BE 30° WITHOUT CERTIFIED TEST VALUES.

ALLOWABLE WALL SYSTEMS:
WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD

ULTIMATE DESIGN STRESSES:
CONCRETE MASONRY
(PARAPET, SIDEWALK, ANCHOR SLAB AND COPING) f'c = 3,500 PSI
BAR STEEL REINFORCEMENT, GRADE 60 fy = 60,000 PSI

WISCONSIN
KURT E. FEUERSTEIN
E-32441
MILWAUKEE, WI
PROFESSIONAL ENGINEER
2/24/14

## LIST OF DRAWINGS

1. GENERAL PLAN AND ELEVATION
2. GENERAL NOTES AND QUANTITIES
3. SUBSURFACE EXPLORATION
4. WALL AND SLAB DETAILS

BUREAU OF STRUCTURES CONTACT:
WILLIAM DREHER (608-266-8489)
CONSULTANT CONTACT:
KURT FEUERSTEIN (262-901-2508)

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

Addendum No. 01
ID 1060-33-81
Added Sheet 6680AA
August 17, 2015

PATRICK
ENGINEER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher 2/25/14
CHIEF STRUCTURES DESIGN ENGINEER DATE

# STRUCTURE R-40-617

DAKOTA STREET PED BRIDGE OVER I-894/US

| COUNTY | TOWN/CITY/VILLAGE |
|---|---|
| MILWAUKEE | WEST ALLIS |

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

| DESIGNED BY | DESIGN CK'D. | DRAWN BY | PLANS CK'D. |
|---|---|---|---|
| PEW | DMM | JRM | KEF |

GENERAL PLAN AND ELEVATION

SHEET 1 OF 4

6680AA

8

8

Pdf_Dw_HS.plt
PEI_TextSub.tbl

| STATE PROJECT NUMBER |
|---|
| 1100-03-79 |

## TOTAL ESTIMATED QUANTITIES

| | ITEM NO. | BID ITEM | UNIT | TOTAL |
|---|---|---|---|---|
| | 206.3000 | EXCAVATION FOR STRUCTURES RETAINING WALLS (R-40-617) | L.S. | 1.0 |
| | 502.3200 | PROTECTIVE SURFACE TREATMENT | SY | 110.0 |
| ** | 504.0500 | CONCRETE MASONRY RETAINING WALLS | CY | 36.0 |
| ** | 505.0615 | BAR STEEL REINFORCEMENT HS COATED RETAINING WALLS | LB | 3750.0 |
| | 532.0500.S | WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD | SF | [illegible] |
| | 612.0406 | PIPE UNDERDRAIN WRAPPED 6-INCH | LF | 139.0 |
| | 652.0210 | CONDUIT RIGID NONMETALLIC SCHEDULE 40 1-INCH | | 65.0 |
| | SPV.0105.07 | RAILING TUBULAR SCREENING SPECIAL R-40-617 | S. | |
| | | NON-BID ITEMS | | |
| | | EXPANDED POLYSTYRENE | SI. | 1" |
| | | NON-BITUMINOUS JOINT FILLER | SIZE | 1" |
| | | CORK FILLER | SIZE | 1" |

ALL ITEMS ARE CATEGORY 0060

** QUANTITY INCLUDES SLAB AND CURB

FOR INFORMATION ONLY

## SOIL PARAMETERS

| SOIL DESCRIPTIONS & STRATUM LOCATIONS | FRICTION ANGLE (DEGREES) | COHESION (PSF) | UNIT WEIGHT (PCF) |
|---|---|---|---|
| GRANULAR BACKFILL WITHIN THE WALL IN THE WALL REINFORCING ZONE | | 0 | 120 |
| BORING D-10, STA. 17+50- LT 0.0 | | | |
| FILL, GRAVEL AND CLAY, BROWN, MOIST. ELEVATION 766.6 FEET TO 759.6 FEET | 21 | 0 | 130 |
| GRAY LEAN CLAY AND TRACE SAND, VERY STIFF ELEVATION 759.6 FEET TO 731.6 FEET | 21 | 0 | 130 |

## WALL EXTERNAL AND OVERALL STABILITY EVALUATION

| DIMENSIONS | | | | | |
|---|---|---|---|---|---|
| WALL HEIGHT (FEET)[1] | 17.9 | | | | |
| EXPOSED WALL HEIGHT (FEET)[2] | 12.3 | | | | |
| MINIMUM LENGTH OF REINFORCEMENT (FEET) | 11.5 | | | | |
| WALL STATION | 1+00.00 | | | | |
| BORING USED | D-10 | | | | |
| CAPACITY TO DEMAND RATIO (CDR) | | | | | |
| SLIDING (CDR > 1.0) | N/A | | | | |
| ECCENTRICTY (CDR > 1.0) | N/A | | | | |
| FACTORED BEARING RESISTANCE (PSF) | 6,000 | | | | |
| BEARING RESISTANCE (CDR > 1.0) | 1.65 | | | | |
| OVERALL STABILITY (CDR > 1.0) | 1.12 | | | | |

## GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.

BEVEL EXPOSED EDGES OF CONCRETE ¾", UNLESS NOTED OTHERWISE.

APPLY PROTECTIVE SURFACE TREATMENT TO THE TOP OF THE CONCRETE PATH, FACE OF CURBS AND TOP OF CURBS.

THE 'W617' STATION LINE SIGNIFIES THE WALL ℄ LINE STATIONING ALONG THE FRONT FACE OF R-40-617.

ALL WALL STATIONING AND OFFSETS ARE GIVEN AT THE FRONT FACE OF WALL.

COORDINATE CONSTRUCTION OF THE WALL WITH THE NE ABUTMENT OF OF B-40-889

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE LOCATIONS OF ALL EXPANSION JOINTS. LOCATE THE JOINTS TO COINCIDE WITH THE VERTICAL MSE WALL PANEL JOINTS.

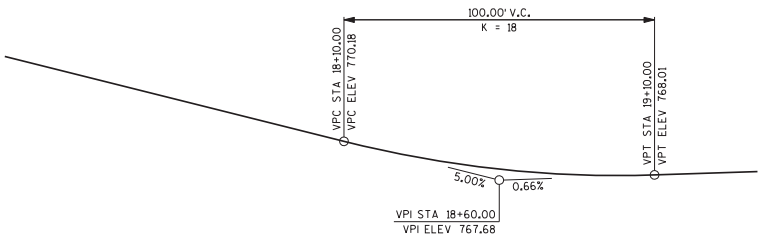
THE PLAN QUANTITY FOR THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD" IS BASED ON A WALL HEIGHT MEASURED FROM THE TOP OF THE WALL TO THE TOP OF THE LEVELING PAD.

THE QUANTITY OF CONCRETE MASONRY FOR THE CAST-IN-PLACE COPING, SLAB, AND CURB IS PAID FOR UNDER THE BID ITEM "CONCRETE MASONRY RETAINING WALLS".

THE QUANTITIES AND REINFORCEMENT DETAILS ARE BASED ON AN ASSUMED WALL PANEL THICKNESS OF 5½" AND A 5" PANEL EMBEDMENT. FOR PANEL THICKNESS AND PANEL EMBEDMENT DIFFERENT THAN THESE VALUES, THE CONTRACTOR SHALL VERIFY REINFORCEMENT BAR DETAILS AND QUANTITIES AND WILL BE RESPONSIBLE FOR ANY QUANTITY VARIATIONS.

FILLER SHALL CONFORM TO THE REQUIREMENTS OF AASHTO DESIGNATION M153, TYPES I, II OR III OR M213.

ALL CONTRACTORS EQUIPEMENT MUST MAINTAIN THE MINIMUM OSHA CLEARANCE FROM ATC AND WE ENERGIES OVERHEAD FACILITIES AS DESCRIBED IN OSHA'S GUIDELINES FOR CLEARANCES. ALL CONTRACTORS SHOULD INCORPORATE ANY ADDITIONAL COSTS ASSOCIATED WITH WORKING AROUND EXISTING ATC AND WE ENERGIES FACILITIES INTO THEIR BID, AS ATC AND WE ENERGIES BELIEVE THEY DO NOT IMPOSE ANY DIRECT CONFLICTS WITH THE SCOPE OF THIS PROJECT.




PROPOSED PROFILE GRADE LINE - DAKOTA STREET PEDESTRIAN BRIDGE

Addendum No. 01
ID 1060-33-81
Added Sheet 6680AB
August 17, 2015

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-617

DRAWN BY JRM | PLANS CK'D. PEW

GENERAL NOTES & QUANTITIES

SHEET OF

6680AB

8

8

Pdf_bw_HS.plt
PEI_TEXTSUB.TBL

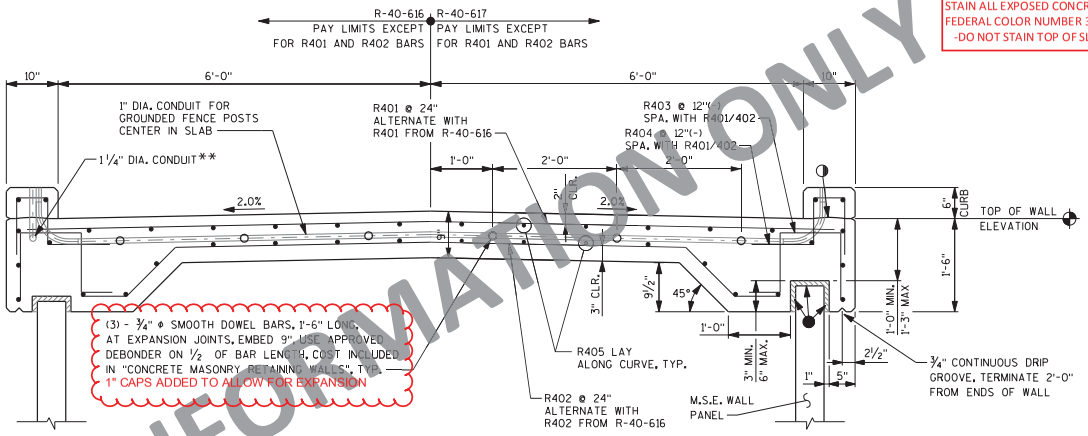
FILE NAME : P:\Milwaukee\Projects\WisDOT\21152.022\Dakota\CADD\Sheets\084020_gn.dgn PLOT DATE : 2/24/2014 4:51:02 PM PLOT BY : Kurt Feuerstein (Rdwy_Wis) PLOT NAME : PLOT SCALE : 24.0000 sf / IN.

FILE=
SCALE =

FOR INFORMATION ONLY

| STATE PROJECT NUMBER |
|---|
| 1100-03-79 |

STAIN ALL EXPOSED CONCRETE SURFACES ON R-40-617 BASE COLOR A, FEDERAL COLOR NUMBER 33564, EXCEPT AS FOLLOWS:
-DO NOT STAIN TOP OF SLAB, INSIDE FACE OF CURB OR TOP OF CURB




## TYPICAL SECTION OF SLAB
(LOOKING SOUTH)

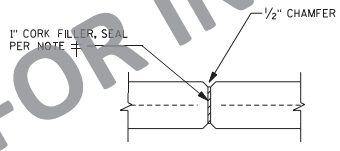
◐ OPTIONAL CONST. JOINT - STRIKE OFF AS SHOWN.
● 1" EXPANDED POLYSTYRENE ***

ALL BAR STEEL IN CAST-IN-PLACE CONCRETE SHALL BE EPOXY COATED.

CONCRETE QUANTITY BASED ON 5" PANEL EMBEDMENT & 5½" PANEL THICKNESS.

** REFER TO B-40-889 CONDUIT DETAILS FOR EXPANSION FITTING AND BENDING

*** INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY RETAINING WALLS".



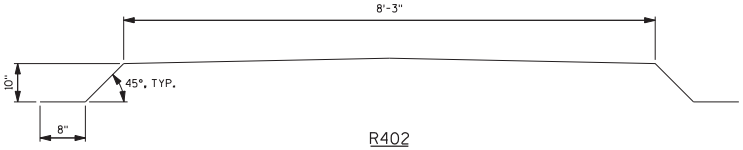

## SLAB & CURB EXPANSION JOINT
DO NOT RUN BAR STEEL THRU JOINT.
MAXIMUM SPACING OF JOINT = 30'
ADJUST BAR R405 LENGTHS TO MATCH JOINT SPACING

‡ SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONC.)

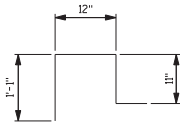
## BILL OF BARS

| BAR MARK | COATED | NO. REQ'D | LENGTH | BENT | BAR SERIES | LOCATION |
|---|---|---|---|---|---|---|
| R401 | X | 74 | 13'-0" | | | SLAB TOP |
| R402 | X | 74 | 11'-11" | ▲ | | SLAB BOTTOM |
| R403 | X | 148 | 3'-6" | ▲ | | SLAB OVER WALL/COPING |
| R404 | X | 148 | 3'-2" | ▲ | | SLAB CURB |
| R405 | X | 19 | 145'-9" | | | SLAB, CURB, COPING LONGITUDINAL |

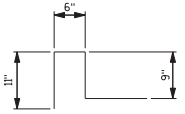
NOTES:
1. THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.
2. ASSUMED PANEL THICKNESS OF 5 1/2" USED WHEN DETERMINING BAR DIMENSIONS.
3. R405 BARS SHALL BE FABRICATED TO MATCH EXPANSION JOINT SPACING, FIELD CUTTING IS NOT ALLOWED.




R402

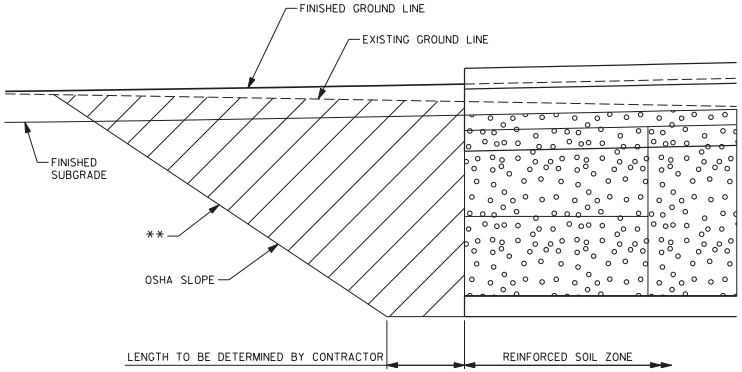



R403




R404

Addendum No. 01
ID 1060-33-81
Added Sheet 6680AC
August 17, 2015




SECTION PARALLEL WITH PEDESTRIAN BRIDGE

LIMITS OF EXCAVATION AND BACKFILL PAID FOR UNDER "EXCAVATION FOR STRUCTURES RETAINING WALLS (R-40-614)"

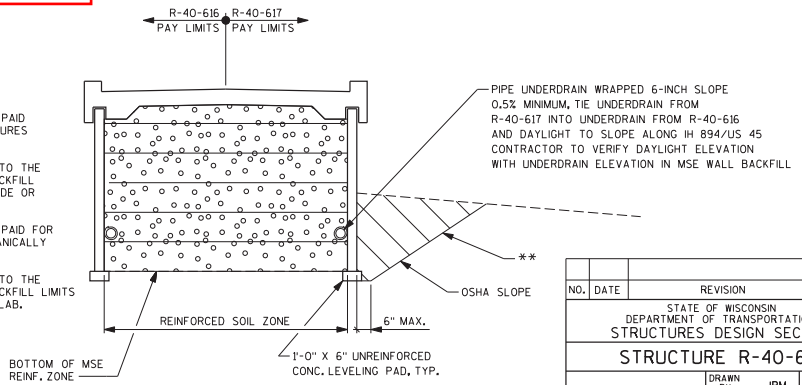
UPPER EXCAVATION LIMITS SHALL BE TO THE EXISTING GROUND LINE AND UPPER BACKFILL LIMITS SHALL BE TO FINISHED SUBGRADE OR FINISHED GROUND LINE.

LIMITS OF EXCAVATION AND BACKFILL PAID FOR UNDER "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD".

UPPER EXCAVATION LIMITS SHALL BE TO THE EXISTING GROUND LINE AND UPPER BACKFILL LIMITS SHALL BE TO THE BOTTOM OF THE SLAB.

** BACKFILL SHALL BE IN ACCORDANCE WITH SECTION 207 OF THE STANDARD SPECIFICATIONS CONTRACTOR MAY USE EXCAVATED MATERIAL WITH APPROVAL OF THE ENGINEER

## EXCAVATION/BACKFILL DETAIL




SECTION PERPENDICULAR TO PEDESTRIAN BRIDGE

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-617

DRAWN BY JRM | PLANS CK'D. PEW

WALL AND SLAB DETAILS

SHEET 4 OF 4

6680AC

8

8

Pdf_Dw_HS.plt
PEI_TextSub.tbl

FILE NAME : p:\milwaukee\projects\wisdot\21152.022\dakota\cadd\sheets\084450_rt.dgn PLOT DATE : 1/31/2014 2:35:51 PM PLOT BY : Kurt Feuerstein (Rdwy_Wis) PLOT NAME : PLOT SCALE : 24.0000 sf / IN.

FILE= SCALE =

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| | **SECTION 0001 Roadway Items** | | | | | |
| 0001 | 108.3100.S Incentive/Disincentive for Interim Completion of Work 0003. Ramp NE | 0.100 CD | 10000.00000 | | 1000.00 | |
| 0002 | 108.4400 CPM Progress Schedule | 1.000 EACH | . | | . | |
| 0003 | 201.0105 Clearing | 336.000 STA | . | | . | |
| 0004 | 201.0120 Clearing | 528.000 ID | . | | . | |
| 0005 | 201.0205 Grubbing | 336.000 STA | . | | . | |
| 0006 | 201.0220 Grubbing | 528.000 ID | . | | . | |
| 0007 | 203.0200 Removing Old Structure (station) 0001. 591WS+30 | LUMP | LUMP | | . | |
| 0008 | 203.0200 Removing Old Structure (station) 0002. 175HA+52.38 | LUMP | LUMP | | . | |
| 0009 | 203.0200 Removing Old Structure (station) 0003. 285NS+50 | LUMP | LUMP | | . | |

SCHEDULE OF ITEMS REVISED:

| CONTRACT: | PROJECT(S): | FEDERAL ID(S): |
|---|---|---|
| 20150929001 | 1060-33-81 | WISC 2015473 |
| | 1060-34-82 | N/A |
| | 1060-43-81 | WISC 2015474 |

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0010 | 203.0200 Removing Old Structure (station) 0004. 600ES+80 | LUMP | LUMP | | | . |
| 0011 | 203.0200 Removing Old Structure (station) 0005. 589ES+60 | LUMP | LUMP | | | . |
| 0012 | 203.0200 Removing Old Structure (station) 0006. 296NS+00 | LUMP | LUMP | | | . |
| 0013 | 203.0200 Removing Old Structure (station) 0007. 128EW+41 | LUMP | LUMP | | | . |
| 0014 | 203.0200 Removing Old Structure (station) 0008. 127EW+00 | LUMP | LUMP | | | . |
| 0015 | 203.0200 Removing Old Structure (station) 0009. 112EW+25 | LUMP | LUMP | | | . |
| 0016 | 203.0200 Removing Old Structure (station) 0010. 112EW+24 | LUMP | LUMP | | | . |
| 0017 | 203.0200 Removing Old Structure (station) 0011. 229NS+80 | LUMP | LUMP | | | . |
| 0018 | 203.0200 Removing Old Structure (station) 0012. 229NS+90 | LUMP | LUMP | | | . |
| 0019 | 203.0200 Removing Old Structure (station) 0015. 592SE+50 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0020 | 203.0200 Removing Old Structure (station) 0016. 545NE+50 | LUMP | LUMP | | | . |
| 0021 | 203.0200 Removing Old Structure (station) 0017. 591ES+22 | LUMP | LUMP | | | . |
| 0022 | 203.0200 Removing Old Structure (station) 0018. 596ES+71 | LUMP | LUMP | | | . |
| 0023 | 203.0200 Removing Old Structure (station) 0019. 786GE+00 | LUMP | LUMP | | | . |
| 0024 | 203.0200 Removing Old Structure (station) 0020. 16+00 | LUMP | LUMP | | | . |
| 0025 | 203.0200 Removing Old Structure (station) 0021. 236NS+00 | LUMP | LUMP | | | . |
| 0026 | 203.0200 Removing Old Structure (station) 0022. 252NS+65 | LUMP | LUMP | | | . |
| 0027 | 203.0200 Removing Old Structure (station) 0023. 253NS+50 | LUMP | LUMP | | | . |
| 0029 | 203.0200 Removing Old Structure (station) 0025. 155EW+50 | LUMP | LUMP | | | . |
| 0030 | 203.0200 Removing Old Structure (station) 0026. 159EW+00 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0031 | 203.0200 Removing Old Structure (station) 0027. 556NE+00 | LUMP | LUMP | | | . |
| 0032 | 203.0200 Removing Old Structure (station) 0028. 734BA+50 | LUMP | LUMP | | | . |
| 0033 | 203.0200 Removing Old Structure (station) 0029. 345NS+00 | LUMP | LUMP | | | . |
| 0034 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0001. B-40-101 | LUMP | LUMP | | | . |
| 0035 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0002. B-40-0112 | LUMP | LUMP | | | . |
| 0036 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0003. B-40-0126 | LUMP | LUMP | | | . |
| 0037 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0004. B-40-0127 | LUMP | LUMP | | | . |
| 0038 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0005. B-40-0143 | LUMP | LUMP | | | . |
| 0039 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0006. B-40-0144 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0040 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0007. B-40-94 | LUMP | LUMP | | | . |
| 0041 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0008. B-40-0096 | LUMP | LUMP | | | . |
| 0042 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0009. B-40-0097 | LUMP | LUMP | | | . |
| 0043 | 203.0225.S Debris Containment (structure) 0001. B-40-0126 | LUMP | LUMP | | | . |
| 0044 | 203.0225.S Debris Containment (structure) 0002. B-40-0127 | LUMP | LUMP | | | . |
| 0045 | 203.0600.S Removing Old Structure Over Waterway With Minimal Debris (station) 0001. 100EW+77 | LUMP | LUMP | | | . |
| 0046 | 203.0600.S Removing Old Structure Over Waterway With Minimal Debris (station) 0002. 100EW+80 | LUMP | LUMP | | | . |
| 0047 | 204.0100 Removing Pavement **P** | 271,595.000 SY | . | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0048 | 204.0109.S Removing Concrete Surface Partial Depth **P** | 7,771.000 SF | | . | | . |
| 0049 | 204.0110 Removing Asphaltic Surface **P** | 70,771.000 SY | | . | | . |
| 0050 | 204.0120 Removing Asphaltic Surface Milling **P** | 31,419.000 SY | | . | | . |
| 0051 | 204.0150 Removing Curb & Gutter **P** | 7,078.000 LF | | . | | . |
| 0052 | 204.0155 Removing Concrete Sidewalk **P** | 1,217.000 SY | | . | | . |
| 0053 | 204.0157 Removing Concrete Barrier **P** | 38,677.000 LF | | . | | . |
| 0054 | 204.0165 Removing Guardrail **P** | 5,614.000 LF | | . | | . |
| 0055 | 204.0170 Removing Fence **P** | 34,114.000 LF | | . | | . |
| 0056 | 204.0195 Removing Concrete Bases | 140.000 EACH | | . | | . |
| 0057 | 204.0210 Removing Manholes | 91.000 EACH | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0058 | 204.0220 Removing Inlets | 565.000 EACH | | . | | . |
| 0059 | 204.0245 Removing Storm Sewer (size) 0001. 12-Inch | 17,857.000 LF | | . | | . |
| 0060 | 204.0245 Removing Storm Sewer (size) 0002. 15-Inch | 4,058.000 LF | | . | | . |
| 0061 | 204.0245 Removing Storm Sewer (size) 0003. 18-Inch | 2,125.000 LF | | . | | . |
| 0062 | 204.0245 Removing Storm Sewer (size) 0004. 21-Inch | 1,913.000 LF | | . | | . |
| 0063 | 204.0245 Removing Storm Sewer (size) 0005. 24-Inch | 508.000 LF | | . | | . |
| 0064 | 204.0245 Removing Storm Sewer (size) 0006. 27-Inch | 870.000 LF | | . | | . |
| 0065 | 204.0245 Removing Storm Sewer (size) 0007. 30-Inch | 1,241.000 LF | | . | | . |
| 0066 | 204.0245 Removing Storm Sewer (size) 0008. 42-Inch | 195.000 LF | | . | | . |
| 0067 | 204.0245 Removing Storm Sewer (size) 0009. 48-Inch | 1,790.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0068 | 204.0245 Removing Storm Sewer (size) 0010. 54-Inch | 1,853.000 LF | | . | | . |
| 0069 | 204.0245 Removing Storm Sewer (size) 0011. 60-Inch | 124.000 LF | | . | | . |
| 0070 | 204.0245 Removing Storm Sewer (size) 0015. 96-Inch | 98.000 LF | | . | | . |
| 0071 | 204.0250 Abandoning Manholes | 2.000 EACH | | . | | . |
| 0072 | 204.0280 Sealing Pipes | 87.000 EACH | | . | | . |
| 0073 | 204.0291.S Abandoning Sewer | 636.000 CY | | . | | . |
| 0074 | 204.9060.S Removing (item description) 0002. Apron Endwall | 9.000 EACH | | . | | . |
| 0075 | 204.9090.S Removing (item description) 0001. Noise Barrier | 4,759.000 LF | | . | | . |
| 0076 | 204.9090.S Removing (item description) 0005. Drain Slotted Vane | 566.000 LF | | . | | . |
| 0077 | 205.0100 Excavation Common **P** | 1,076,127 CY | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0078 | 206.1000 Excavation for Structures Bridges (structure) 0002. B-40-787 | LUMP | LUMP | | | . |
| 0079 | 206.1000 Excavation for Structures Bridges (structure) 0003. B-40-788 | LUMP | LUMP | | | . |
| 0080 | 206.1000 Excavation for Structures Bridges (structure) 0004. B-40-790 | LUMP | LUMP | | | . |
| 0081 | 206.1000 Excavation for Structures Bridges (structure) 0005. B-40-795 | LUMP | LUMP | | | . |
| 0082 | 206.1000 Excavation for Structures Bridges (structure) 0006. B-40-796 | LUMP | LUMP | | | . |
| 0083 | 206.1000 Excavation for Structures Bridges (structure) 0007. B-40-797 | LUMP | LUMP | | | . |
| 0084 | 206.1000 Excavation for Structures Bridges (structure) 0008. B-40-851 | LUMP | LUMP | | | . |
| 0085 | 206.1000 Excavation for Structures Bridges (structure) 0012. B-40-858 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0086 | 206.1000 Excavation for Structures Bridges (structure) 0013. B-40-859 | LUMP | LUMP | | | . |
| 0087 | 206.1000 Excavation for Structures Bridges (structure) 0014. B-40-860 | LUMP | LUMP | | | . |
| 0088 | 206.1000 Excavation for Structures Bridges (structure) 0015. B-40-861 | LUMP | LUMP | | | . |
| 0089 | 206.1000 Excavation for Structures Bridges (structure) 0016. B-40-867 | LUMP | LUMP | | | . |
| 0090 | 206.1000 Excavation for Structures Bridges (structure) 0017. B-40-869 | LUMP | LUMP | | | . |
| 0091 | 206.1000 Excavation for Structures Bridges (structure) 0018. B-40-870 | LUMP | LUMP | | | . |
| 0092 | 206.1000 Excavation for Structures Bridges (structure) 0019. B-40-871 | LUMP | LUMP | | | . |
| 0093 | 206.1000 Excavation for Structures Bridges (structure) 0020. B-40-872 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0094 | 206.1000 Excavation for Structures Bridges (structure) 0021. B-40-873 | LUMP | LUMP | | | . |
| 0095 | 206.1000 Excavation for Structures Bridges (structure) 0022. B-40-874 | LUMP | LUMP | | | . |
| 0096 | 206.1000 Excavation for Structures Bridges (structure) 0023. B-40-882 | LUMP | LUMP | | | . |
| 0097 | 206.1000 Excavation for Structures Bridges (structure) 0024. B-40-883 | LUMP | LUMP | | | . |
| 0098 | 206.3000 Excavation for Structures Retaining Walls (structure) 0001. R-40-467 | LUMP | LUMP | | | . |
| 0099 | 206.3000 Excavation for Structures Retaining Walls (structure) 0002. R-40-468 | LUMP | LUMP | | | . |
| 0100 | 206.3000 Excavation for Structures Retaining Walls (structure) 0003. R-40-516 | LUMP | LUMP | | | . |
| 0101 | 206.3000 Excavation for Structures Retaining Walls (structure) 0004. R-40-557 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0102 | 206.3000 Excavation for Structures Retaining Walls (structure) 0005. R-40-630 | LUMP | LUMP | | | . |
| 0103 | 206.3000 Excavation for Structures Retaining Walls (structure) 0006. R-40-631 | LUMP | LUMP | | | . |
| 0104 | 206.3000 Excavation for Structures Retaining Walls (structure) 0007. R-40-655 | LUMP | LUMP | | | . |
| 0105 | 209.0100 Backfill Granular | 10,157.000 CY | | . | | . |
| 0106 | 209.0200.S Backfill Controlled Low Strength | 8,743.000 CY | | . | | . |
| 0107 | 210.0100 Backfill Structure **P** | 21,152.000 CY | | . | | . |
| 0108 | 305.0110 Base Aggregate Dense 3/4-Inch | 903.000 TON | | . | | . |
| 0109 | 305.0120 Base Aggregate Dense 1 1/4-Inch **P** | 271,829.000 TON | | . | | . |
| 0110 | 305.0135 Base Aggregate Dense 3-Inch | 389.000 CY | | . | | . |
| 0111 | 310.0115 Base Aggregate Open Graded | 2,465.000 CY | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0112 | 312.0115 Select Crushed Material **P** | 256,930.000 CY | | . | | . |
| 0113 | 390.0103 Base Patching | 1,800.000 SY | | . | | . |
| 0114 | 415.0070 Concrete Pavement 7-Inch **P** | 231.000 SY | | . | | . |
| 0115 | 415.0080 Concrete Pavement 8-Inch **P** | 7,430.000 SY | | . | | . |
| 0116 | 415.0085 Concrete Pavement 8 1/2-Inch **P** | 9,052.000 SY | | . | | . |
| 0117 | 415.0090 Concrete Pavement 9-Inch **P** | 67,747.000 SY | | . | | . |
| 0118 | 415.0095 Concrete Pavement 9 1/2-Inch **P** | 16,285.000 SY | | . | | . |
| 0119 | 415.0210 Concrete Pavement Gaps | 12.000 EACH | | . | | . |
| 0120 | 415.0410 Concrete Pavement Approach Slab **P** | 9,380.000 SY | | . | | . |
| 0121 | 416.0270 Concrete Driveway HES 7-Inch | 534.000 SY | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0122 | 416.0280 Concrete Driveway HES 8-Inch | 48.000 SY | . | | . | |
| 0123 | 416.0610 Drilled Tie Bars | 2,023.000 EACH | . | | . | |
| 0124 | 416.0620 Drilled Dowel Bars | 2,343.000 EACH | . | | . | |
| 0125 | 440.4410.S Incentive IRI Ride | 98,242.000 DOL | 1.00000 | | 98242.00 | |
| 0126 | 440.5020 Incentive IRI Ride Bridge | 92,684.800 DOL | 1.00000 | | 92684.80 | |
| 0127 | 455.0105 Asphaltic Material PG58-28 | 136.000 TON | . | | . | |
| 0128 | 455.0120 Asphaltic Material PG64-28 | 1,151.000 TON | . | | . | |
| 0129 | 455.0140 Asphaltic Material PG64-28P | 41.000 TON | . | | . | |
| 0130 | 455.0150 Asphaltic Material PG70-28P | 676.000 TON | . | | . | |
| 0131 | 455.0605 Tack Coat | 5,352.000 GAL | . | | . | |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0132 | 460.1101 HMA Pavement Type E-1 | 145.000 TON | | . | | . |
| 0133 | 460.1110 HMA Pavement Type E-10 | 2,260.000 TON | | . | | . |
| 0134 | 460.1130 HMA Pavement Type E-30 | 24,461.000 TON | | . | | . |
| 0135 | 460.1700 HMA Pavement Type SMA | 695.000 TON | | . | | . |
| 0136 | 460.2000 Incentive Density HMA Pavement | 17,639.000 DOL | 1.00000 | | 17639.00 | |
| 0137 | 460.4000 HMA Cold Weather Paving | 1,001.000 TON | | . | | . |
| 0138 | 465.0105 Asphaltic Surface | 2,521.000 TON | | . | | . |
| 0139 | 465.0120 Asphaltic Surface Driveways and Field Entrances | 8.000 TON | | . | | . |
| 0140 | 465.0125 Asphaltic Surface Temporary | 14,869.000 TON | | . | | . |
| 0141 | 465.0310 Asphaltic Curb | 646.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0142 | 502.0100 Concrete Masonry Bridges **P** | 11,618.000 CY | | . | | . |
| 0143 | 502.3100 Expansion Device (structure) 0001. B-40-861 | LUMP | LUMP | | | . |
| 0144 | 502.3100 Expansion Device (structure) 0002. B-40-869 | LUMP | LUMP | | | . |
| 0145 | 502.3100 Expansion Device (structure) 0003. B-40-870 | LUMP | LUMP | | | . |
| 0146 | 502.3200 Protective Surface Treatment **P** | 95,242.000 SY | | . | | . |
| 0147 | 502.5005 Masonry Anchors Type L No. 5 Bars | 98.000 EACH | | . | | . |
| 0148 | 502.5010 Masonry Anchors Type L No. 6 Bars | 28.000 EACH | | . | | . |
| 0149 | 502.6102 Masonry Anchors Type S 1/2-Inch | 35.000 EACH | | . | | . |
| 0150 | 503.0137 Prestressed Girder Type I 36W-Inch **P** | 3,091.000 LF | | . | | . |
| 0151 | 503.0146 Prestressed Girder Type I 45W-Inch **P** | 3,778.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0152 | 503.0155 Prestressed Girder Type I 54W-Inch **P** | 29,077.000 LF | | . | | . |
| 0153 | 503.0172 Prestressed Girder Type I 72W-Inch **P** | 1,313.000 LF | | . | | . |
| 0154 | 504.0500 Concrete Masonry Retaining Walls **P** | 11,126.000 CY | | . | | . |
| 0155 | 505.0405 Bar Steel Reinforcement HS Bridges | 310,651.000 LB | | . | | . |
| 0156 | 505.0415 Bar Steel Reinforcement HS Retaining Walls | 180,065.000 LB | | . | | . |
| 0157 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 4,730,556 LB | | . | | . |
| 0158 | 505.0615 Bar Steel Reinforcement HS Coated Retaining Walls | 1,211,960 LB | | . | | . |
| 0159 | 505.0800.S Bar Steel Reinforcement HS Stainless Structures | 4,029,390 LB | | . | | . |
| 0160 | 505.0905 Bar Couplers No. 5 | 18.000 EACH | | . | | . |
| 0161 | 505.0906 Bar Couplers No. 6 | 1,032.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0162 | 505.0909 Bar Couplers No. 9 | 44.000 EACH | | . | | . |
| 0163 | 505.0910 Bar Couplers No. 10 | 52.000 EACH | | . | | . |
| 0164 | 506.0605 Structural Steel HS **P** | 20,031,692 LB | | . | | . |
| 0165 | 506.2605 Bearing Pads Elastomeric Non-Laminated **P** | 526.000 EACH | | . | | . |
| 0166 | 506.2610 Bearing Pads Elastomeric Laminated **P** | 116.000 EACH | | . | | . |
| 0167 | 506.3010 Welded Stud Shear Connectors 7/8x5-Inch **P** | 3,768.000 EACH | | . | | . |
| 0168 | 506.3015 Welded Stud Shear Connectors 7/8x6-Inch **P** | 75,088.000 EACH | | . | | . |
| 0169 | 506.3020 Welded Stud Shear Connectors 7/8x7-Inch **P** | 3,450.000 EACH | | . | | . |
| 0170 | 506.3025 Welded Stud Shear Connectors 7/8x8-Inch **P** | 30,186.000 EACH | | . | | . |
| 0171 | 506.3030 Welded Stud Shear Connectors 7/8x9-Inch **P** | 15,180.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0172 | 506.4000 Steel Diaphragms (structure) 0001. B-40-788 **P** | 18.000 EACH | | . | | . |
| 0173 | 506.4000 Steel Diaphragms (structure) 0002. B-40-790 **P** | 44.000 EACH | | . | | . |
| 0174 | 506.4000 Steel Diaphragms (structure) 0003. B-40-795 **P** | 3.000 EACH | | . | | . |
| 0175 | 506.4000 Steel Diaphragms (structure) 0004. B-40-796 **P** | 8.000 EACH | | . | | . |
| 0176 | 506.4000 Steel Diaphragms (structure) 0005. B-40-797 **P** | 6.000 EACH | | . | | . |
| 0177 | 506.4000 Steel Diaphragms (structure) 0006. B-40-850 **P** | 21.000 EACH | | . | | . |
| 0178 | 506.4000 Steel Diaphragms (structure) 0007. B-40-851 **P** | 18.000 EACH | | . | | . |
| 0179 | 506.4000 Steel Diaphragms (structure) 0008. B-40-858 **P** | 26.000 EACH | | . | | . |
| 0180 | 506.4000 Steel Diaphragms (structure) 0009. B-40-859 **P** | 8.000 EACH | | . | | . |
| 0181 | 506.4000 Steel Diaphragms (structure) 0010. B-40-860 **P** | 6.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0182 | 506.4000 Steel Diaphragms (structure) 0011. B-40-867 **P** | 36.000 EACH | | . | | . |
| 0183 | 506.4000 Steel Diaphragms (structure) 0012. B-40-869 **P** | 78.000 EACH | | . | | . |
| 0184 | 506.4000 Steel Diaphragms (structure) 0013. B-40-870 **P** | 84.000 EACH | | . | | . |
| 0185 | 506.4000 Steel Diaphragms (structure) 0014. B-40-871 **P** | 28.000 EACH | | . | | . |
| 0186 | 506.4000 Steel Diaphragms (structure) 0015. B-40-872 **P** | 26.000 EACH | | . | | . |
| 0187 | 506.4000 Steel Diaphragms (structure) 0016. B-40-873 **P** | 52.000 EACH | | . | | . |
| 0188 | 506.4000 Steel Diaphragms (structure) 0017. B-40-874 **P** | 52.000 EACH | | . | | . |
| 0189 | 506.4000 Steel Diaphragms (structure) 0018. B-40-882 **P** | 36.000 EACH | | . | | . |
| 0190 | 506.4000 Steel Diaphragms (structure) 0019. B-40-883 **P** | 32.000 EACH | | . | | . |
| 0191 | 506.5000 Bearing Assemblies Fixed (structure) 0001. B-40-869 | 28.000 EACH | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0192 | 506.5000 Bearing Assemblies Fixed (structure) 0002. B-40-870 | 30.000 EACH | | . | | . |
| 0193 | 506.6000 Bearing Assemblies Expansion (structure) 0001. B-40-787 | 27.000 EACH | | . | | . |
| 0194 | 509.1000 Joint Repair | 80.000 SY | | . | | . |
| 0195 | 511.1200 Temporary Shoring (structure) 0004. B-40-869 | 565.000 SF | | . | | . |
| 0196 | 511.1200 Temporary Shoring (structure) 0005. B-40-870 | 4,430.000 SF | | . | | . |
| 0197 | 511.1200 Temporary Shoring (structure) 0007. R-40-532 | 1,991.000 SF | | . | | . |
| 0198 | 511.1200 Temporary Shoring (structure) 0008. R-40-534 | 4,914.000 SF | | . | | . |
| 0199 | 511.1200 Temporary Shoring (structure) 0009. R-40-540 | 450.000 SF | | . | | . |
| 0200 | 511.1200 Temporary Shoring (structure) 0010. R-40-545 | 270.000 SF | | . | | . |
| 0201 | 511.1200 Temporary Shoring (structure) 0014. B-40-872 | 250.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0202 | 511.1200 Temporary Shoring (structure) 0016. B-40-851 | 1,890.000 SF | | . | | . |
| 0203 | 511.1200 Temporary Shoring (structure) 0017. B-40-873 | 200.000 SF | | . | | . |
| 0204 | 511.1200 Temporary Shoring (structure) 0018. B-40-874 | 1,900.000 SF | | . | | . |
| 0205 | 511.1200 Temporary Shoring (structure) 0019. R-40-630 | 1,825.000 SF | | . | | . |
| 0206 | 511.1200 Temporary Shoring (structure) 0020. R-40-524 | 640.000 SF | | . | | . |
| 0207 | 511.1200 Temporary Shoring (structure) 0021. R-40-467 | 1,425.000 SF | | . | | . |
| 0208 | 511.1200 Temporary Shoring (structure) 0022. R-40-468 | 440.000 SF | | . | | . |
| 0209 | 511.1200 Temporary Shoring (structure) 0023. R-40-522 | 1,340.000 SF | | . | | . |
| 0210 | 511.1300 Temporary Shoring (location) 0001. 217NS+00 To 228NS+57 | 4,921.000 SF | | . | | . |
| 0211 | 511.1300 Temporary Shoring (location) 0002. 275NS+26 To 275NS+51 | 330.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0212 | 511.1300 Temporary Shoring (location) 0003. 230NS+97 To 238NS+00 | 3,360.000 SF | | . | | . |
| 0213 | 511.1300 Temporary Shoring (location) 0004. 93EW+60 To 99EW+20 | 1,357.000 SF | | . | | . |
| 0214 | 511.1300 Temporary Shoring (location) 0005. 102EW+37 To 107EW+30 | 1,362.000 SF | | . | | . |
| 0215 | 511.1300 Temporary Shoring (location) 0006. 110EW+20 To 111EW+25 | 175.000 SF | | . | | . |
| 0216 | 511.1300 Temporary Shoring (location) 0007. 142EW+68 To 143EW+18 | 1,300.000 SF | | . | | . |
| 0217 | 511.1300 Temporary Shoring (location) 0008. 203EW+84 To 204EW+03 | 540.000 SF | | . | | . |
| 0218 | 511.1300 Temporary Shoring (location) 0009. 16EWP+00 To 16EWP+84 | 348.000 SF | | . | | . |
| 0219 | 511.1300 Temporary Shoring (location) 0010. 169EW+85 To 180EW+35 | 5,593.000 SF | | . | | . |
| 0220 | 511.1300 Temporary Shoring (location) 0011. 13ENA+96 To 14ENA+80 | 369.000 SF | | . | | . |
| 0221 | 511.1300 Temporary Shoring (location) 0012. 15ENA+96 To 16ENA+61 | 330.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0222 | 511.1300 Temporary Shoring (location) 0013. 267NS+00 To 267NS+10 | 60.000 SF | | . | | . |
| 0223 | 511.1300 Temporary Shoring (location) 0014. 269NS+54 To 269NS+64 | 80.000 SF | | . | | . |
| 0224 | 511.1300 Temporary Shoring (location) 0015. 291NS+08 To 291NS+73 | 780.000 SF | | . | | . |
| 0225 | 511.1300 Temporary Shoring (location) 0016. 104EW+94 To 105EW+09 | 105.000 SF | | . | | . |
| 0226 | 511.1300 Temporary Shoring (location) 0017. 148EW+97 To 149EW+07 | 60.000 SF | | . | | . |
| 0227 | 511.1300 Temporary Shoring (location) 0018. 797FC+00 To 798FC+25 | 1,875.000 SF | | . | | . |
| 0228 | 511.2200 Temporary Shoring Left in Place (structure) 0001. R-40-525 | 1,130.000 SF | | . | | . |
| 0229 | 512.0500 Piling Steel Sheet Permanent Delivered | 1,600.000 SF | | . | | . |
| 0230 | 512.0600 Piling Steel Sheet Permanent Driven | 1,600.000 SF | | . | | . |
| 0231 | 513.2000 Railing Pipe (structure) 0001. B-40-858 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0232 | 513.2000 Railing Pipe (structure) 0002. R-40-467 | LUMP | LUMP | | | . |
| 0233 | 513.2000 Railing Pipe (structure) 0003. R-40-469 | LUMP | LUMP | | | . |
| 0234 | 513.2000 Railing Pipe (structure) 0004. R-40-498 | LUMP | LUMP | | | . |
| 0235 | 513.2000 Railing Pipe (structure) 0005. R-40-507 | LUMP | LUMP | | | . |
| 0236 | 513.2000 Railing Pipe (structure) 0006. R-40-509 | LUMP | LUMP | | | . |
| 0237 | 513.2000 Railing Pipe (structure) 0007. R-40-511 | LUMP | LUMP | | | . |
| 0238 | 513.2000 Railing Pipe (structure) 0008. R-40-516 | LUMP | LUMP | | | . |
| 0239 | 513.2000 Railing Pipe (structure) 0009. R-40-518 | LUMP | LUMP | | | . |
| 0240 | 513.2000 Railing Pipe (structure) 0010. R-40-522 | LUMP | LUMP | | | . |
| 0241 | 513.2000 Railing Pipe (structure) 0011. R-40-524 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0242 | 513.2000 Railing Pipe (structure) 0012. R-40-525 | LUMP | LUMP | | | . |
| 0243 | 513.2000 Railing Pipe (structure) 0013. R-40-540 | LUMP | LUMP | | | . |
| 0244 | 513.2000 Railing Pipe (structure) 0014. R-40-545 | LUMP | LUMP | | | . |
| 0245 | 513.2000 Railing Pipe (structure) 0015. R-40-557 | LUMP | LUMP | | | . |
| 0246 | 513.2000 Railing Pipe (structure) 0016. R-40-558 | LUMP | LUMP | | | . |
| 0247 | 513.2000 Railing Pipe (structure) 0017. R-40-559 | LUMP | LUMP | | | . |
| 0248 | 513.2000 Railing Pipe (structure) 0018. B-40-797 | LUMP | LUMP | | | . |
| 0249 | 513.2000 Railing Pipe (structure) 0019. R-40-655 | LUMP | LUMP | | | . |
| 0250 | 514.0450 Floor Drains Type WF | 5.000 EACH | | . | | . |
| 0251 | 514.2608 Downspout 8-Inch **P** | 2,441.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0252 | 516.0100 Dampproofing **P** | 5,254.000 SY | | . | | . |
| 0253 | 516.0500 Rubberized Membrane Waterproofing **P** | 3,857.000 SY | | . | | . |
| 0254 | 517.0600 Painting Epoxy System (structure) 0001. B-40-787 | LUMP | LUMP | | | . |
| 0255 | 517.0600 Painting Epoxy System (structure) 0002. B-40-861 | LUMP | LUMP | | | . |
| 0256 | 517.0600 Painting Epoxy System (structure) 0003. R-40-468 | LUMP | LUMP | | | . |
| 0257 | 517.0600 Painting Epoxy System (structure) 0004. R-40-516 | LUMP | LUMP | | | . |
| 0258 | 517.0600 Painting Epoxy System (structure) 0005. R-40-631 | LUMP | LUMP | | | . |
| 0259 | 517.0600 Painting Epoxy System (structure) 0006. R-40-655 | LUMP | LUMP | | | . |
| 0260 | 517.0650.S Painting Polysiloxane System (structure) 0001. B-40-786 | LUMP | LUMP | | | . |
| 0261 | 517.0650.S Painting Polysiloxane System (structure) 0002. B-40-853 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0262 | 517.0650.S Painting Polysiloxane System (structure) 0003. B-40-854 | LUMP | LUMP | | | . |
| 0263 | 517.0650.S Painting Polysiloxane System (structure) 0004. B-40-856 | LUMP | LUMP | | | . |
| 0264 | 517.1010.S Concrete Staining (structure) 0001. B-40-786 **P** | 34,908.000 SF | | . | | . |
| 0265 | 517.1010.S Concrete Staining (structure) 0002. B-40-787 **P** | 14,580.000 SF | | . | | . |
| 0266 | 517.1010.S Concrete Staining (structure) 0003. B-40-788 **P** | 510.000 SF | | . | | . |
| 0267 | 517.1010.S Concrete Staining (structure) 0004. B-40-790 **P** | 11,306.000 SF | | . | | . |
| 0268 | 517.1010.S Concrete Staining (structure) 0005. B-40-795 **P** | 2,780.000 SF | | . | | . |
| 0269 | 517.1010.S Concrete Staining (structure) 0006. B-40-796 **P** | 3,935.000 SF | | . | | . |
| 0270 | 517.1010.S Concrete Staining (structure) 0007. B-40-797 **P** | 3,190.000 SF | | . | | . |
| 0271 | 517.1010.S Concrete Staining (structure) 0008. B-40-850 **P** | 1,350.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0272 | 517.1010.S Concrete Staining (structure) 0009. B-40-851 **P** | 14,657.000 SF | | . | | . |
| 0273 | 517.1010.S Concrete Staining (structure) 0010. B-40-853 **P** | 31,220.000 SF | | . | | . |
| 0274 | 517.1010.S Concrete Staining (structure) 0011. B-40-854 **P** | 77,980.000 SF | | . | | . |
| 0275 | 517.1010.S Concrete Staining (structure) 0012. B-40-856 **P** | 69,015.000 SF | | . | | . |
| 0276 | 517.1010.S Concrete Staining (structure) 0013. B-40-858 **P** | 1,070.000 SF | | . | | . |
| 0277 | 517.1010.S Concrete Staining (structure) 0014. B-40-859 **P** | 5,178.000 SF | | . | | . |
| 0278 | 517.1010.S Concrete Staining (structure) 0015. B-40-860 **P** | 4,286.000 SF | | . | | . |
| 0279 | 517.1010.S Concrete Staining (structure) 0016. B-40-861 **P** | 7,735.000 SF | | . | | . |
| 0280 | 517.1010.S Concrete Staining (structure) 0017. B-40-867 **P** | 9,876.000 SF | | . | | . |
| 0281 | 517.1010.S Concrete Staining (structure) 0018. B-40-869 **P** | 26,300.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0282 | 517.1010.S Concrete Staining (structure) 0019. B-40-870 **P** | 28,300.000 SF | | . | | . |
| 0283 | 517.1010.S Concrete Staining (structure) 0021. B-40-882 **P** | 10,570.000 SF | | . | | . |
| 0284 | 517.1010.S Concrete Staining (structure) 0022. B-40-883 **P** | 10,205.000 SF | | . | | . |
| 0285 | 517.1010.S Concrete Staining (structure) 0023. R-40-467 **P** | 6,125.000 SF | | . | | . |
| 0286 | 517.1010.S Concrete Staining (structure) 0024. R-40-468 **P** | 9,370.000 SF | | . | | . |
| 0287 | 517.1010.S Concrete Staining (structure) 0025. R-40-469 **P** | 1,350.000 SF | | . | | . |
| 0288 | 517.1010.S Concrete Staining (structure) 0026. R-40-470 **P** | 6,295.000 SF | | . | | . |
| 0289 | 517.1010.S Concrete Staining (structure) 0027. R-40-497 **P** | 3,345.000 SF | | . | | . |
| 0290 | 517.1010.S Concrete Staining (structure) 0028. R-40-498 **P** | 13,640.000 SF | | . | | . |
| 0291 | 517.1010.S Concrete Staining (structure) 0029. R-40-505 **P** | 7,278.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0292 | 517.1010.S Concrete Staining (structure) 0030. R-40-507 **P** | 7,616.000 SF | | . | | . |
| 0293 | 517.1010.S Concrete Staining (structure) 0031. R-40-509 **P** | 11,995.000 SF | | . | | . |
| 0294 | 517.1010.S Concrete Staining (structure) 0033. R-40-511 **P** | 2,105.000 SF | | . | | . |
| 0295 | 517.1010.S Concrete Staining (structure) 0034. R-40-516 **P** | 15,710.000 SF | | . | | . |
| 0296 | 517.1010.S Concrete Staining (structure) 0035. R-40-518 **P** | 5,840.000 SF | | . | | . |
| 0297 | 517.1010.S Concrete Staining (structure) 0036. R-40-520 **P** | 3,144.000 SF | | . | | . |
| 0298 | 517.1010.S Concrete Staining (structure) 0037. R-40-522 **P** | 3,600.000 SF | | . | | . |
| 0299 | 517.1010.S Concrete Staining (structure) 0038. R-40-524 **P** | 4,015.000 SF | | . | | . |
| 0300 | 517.1010.S Concrete Staining (structure) 0039. R-40-525 **P** | 6,520.000 SF | | . | | . |
| 0301 | 517.1010.S Concrete Staining (structure) 0040. R-40-527 **P** | 5,461.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0302 | 517.1010.S Concrete Staining (structure) 0041. R-40-529 **P** | 3,374.000 SF | | . | | . |
| 0303 | 517.1010.S Concrete Staining (structure) 0042. R-40-532 **P** | 8,263.000 SF | | . | | . |
| 0304 | 517.1010.S Concrete Staining (structure) 0043. R-40-534 **P** | 839.000 SF | | . | | . |
| 0305 | 517.1010.S Concrete Staining (structure) 0044. R-40-535 **P** | 10,223.000 SF | | . | | . |
| 0306 | 517.1010.S Concrete Staining (structure) 0045. R-40-540 **P** | 16,790.000 SF | | . | | . |
| 0307 | 517.1010.S Concrete Staining (structure) 0046. R-40-545 **P** | 27,597.000 SF | | . | | . |
| 0308 | 517.1010.S Concrete Staining (structure) 0047. R-40-547 **P** | 7,961.000 SF | | . | | . |
| 0309 | 517.1010.S Concrete Staining (structure) 0048. R-40-557 **P** | 7,150.000 SF | | . | | . |
| 0310 | 517.1010.S Concrete Staining (structure) 0049. R-40-558 **P** | 2,463.000 SF | | . | | . |
| 0311 | 517.1010.S Concrete Staining (structure) 0050. R-40-559 **P** | 4,740.000 SF | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|---|
| 0312 | 517.1010.S Concrete Staining (structure) 0051. S-40-11 **P** | 660.000 | SF | | . | | . |
| 0313 | 517.1010.S Concrete Staining (structure) 0052. S-40-13 **P** | 488.000 | SF | | . | | . |
| 0314 | 517.1010.S Concrete Staining (structure) 0053. S-40-15 **P** | 500.000 | SF | | . | | . |
| 0315 | 517.1010.S Concrete Staining (structure) 0054. S-40-26 **P** | 453.000 | SF | | . | | . |
| 0316 | 517.1010.S Concrete Staining (structure) 0055. S-40-29 **P** | 465.000 | SF | | . | | . |
| 0317 | 517.1010.S Concrete Staining (structure) 0056. S-40-30 **P** | 574.000 | SF | | . | | . |
| 0318 | 517.1010.S Concrete Staining (structure) 0057. S-40-31 **P** | 598.000 | SF | | . | | . |
| 0319 | 517.1010.S Concrete Staining (structure) 0058. S-40-35 **P** | 465.000 | SF | | . | | . |
| 0320 | 517.1010.S Concrete Staining (structure) 0060. S-40-40 **P** | 484.000 | SF | | . | | . |
| 0321 | 517.1010.S Concrete Staining (structure) 0062. S-40-42 **P** | 429.000 | SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0322 | 517.1010.S Concrete Staining (structure) 0063. S-40-46 **P** | 410.000 SF | | . | | . |
| 0323 | 517.1010.S Concrete Staining (structure) 0064. S-40-52 **P** | 465.000 SF | | . | | . |
| 0324 | 517.1010.S Concrete Staining (structure) 0065. S-40-74 **P** | 504.000 SF | | . | | . |
| 0325 | 517.1010.S Concrete Staining (structure) 0067. S-40-82 **P** | 84.000 SF | | . | | . |
| 0326 | 517.1010.S Concrete Staining (structure) 0069. S-40-102 **P** | 472.000 SF | | . | | . |
| 0327 | 517.1010.S Concrete Staining (structure) 0072. S-40-111 **P** | 594.000 SF | | . | | . |
| 0328 | 517.1010.S Concrete Staining (structure) 0074. S-40-114 **P** | 433.000 SF | | . | | . |
| 0329 | 517.1010.S Concrete Staining (structure) 0075. S-40-115 **P** | 437.000 SF | | . | | . |
| 0330 | 517.1010.S Concrete Staining (structure) 0076. S-40-3 **P** | 855.000 SF | | . | | . |
| 0331 | 517.1010.S Concrete Staining (structure) 0077. S-40-8 **P** | 964.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0332 | 517.1010.S Concrete Staining (structure) 0078. S-40-10 **P** | 995.000 SF | | . | | . |
| 0333 | 517.1010.S Concrete Staining (structure) 0079. S-40-19 **P** | 957.000 SF | | . | | . |
| 0334 | 517.1010.S Concrete Staining (structure) 0080. S-40-20 **P** | 940.000 SF | | . | | . |
| 0335 | 517.1010.S Concrete Staining (structure) 0081. S-40-23 **P** | 851.000 SF | | . | | . |
| 0336 | 517.1010.S Concrete Staining (structure) 0082. S-40-33 **P** | 944.000 SF | | . | | . |
| 0337 | 517.1010.S Concrete Staining (structure) 0083. S-40-34 **P** | 944.000 SF | | . | | . |
| 0338 | 517.1010.S Concrete Staining (structure) 0084. S-40-45 **P** | 614.000 SF | | . | | . |
| 0339 | 517.1010.S Concrete Staining (structure) 0085. S-40-53 **P** | 969.000 SF | | . | | . |
| 0340 | 517.1010.S Concrete Staining (structure) 0086. S-40-55 **P** | 952.000 SF | | . | | . |
| 0341 | 517.1010.S Concrete Staining (structure) 0087. S-40-80 **P** | 1,054.000 SF | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0342 | 517.1010.S Concrete Staining (structure) 0088. S-40-81 **P** | 576.000 SF | | . | | . |
| 0343 | 517.1010.S Concrete Staining (structure) 0089. S-40-84 **P** | 1,041.000 SF | | . | | . |
| 0344 | 517.1010.S Concrete Staining (structure) 0090. S-40-86 **P** | 1,003.000 SF | | . | | . |
| 0345 | 517.1010.S Concrete Staining (structure) 0091. S-40-91 **P** | 1,012.000 SF | | . | | . |
| 0346 | 517.1010.S Concrete Staining (structure) 0092. S-40-93 **P** | 944.000 SF | | . | | . |
| 0347 | 517.1010.S Concrete Staining (structure) 0094. S-40-97 **P** | 1,210.000 SF | | . | | . |
| 0348 | 517.1010.S Concrete Staining (structure) 0095. S-40-98 **P** | 952.000 SF | | . | | . |
| 0349 | 517.1010.S Concrete Staining (structure) 0096. S-40-103 **P** | 1,003.000 SF | | . | | . |
| 0350 | 517.1010.S Concrete Staining (structure) 0097. S-40-105 **P** | 957.000 SF | | . | | . |
| 0351 | 517.1010.S Concrete Staining (structure) 0098. S-40-112 **P** | 1,282.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0352 | 517.1010.S Concrete Staining (structure) 0099. S-40-138 **P** | 817.000 SF | | . | | . |
| 0353 | 517.1010.S Concrete Staining (structure) 0103. B-40-871 **P** | 4,806.000 SF | | . | | . |
| 0354 | 517.1010.S Concrete Staining (structure) 0104. B-40-872 **P** | 4,709.000 SF | | . | | . |
| 0355 | 517.1010.S Concrete Staining (structure) 0105. B-40-873 **P** | 11,870.000 SF | | . | | . |
| 0356 | 517.1010.S Concrete Staining (structure) 0106. B-40-874 **P** | 12,860.000 SF | | . | | . |
| 0357 | 517.1010.S Concrete Staining (structure) 0107. R-40-495 **P** | 9,865.000 SF | | . | | . |
| 0358 | 517.1010.S Concrete Staining (structure) 0109. R-40-631 **P** | 1,690.000 SF | | . | | . |
| 0359 | 517.1010.S Concrete Staining (structure) 0110. R-40-655 **P** | 1,205.000 SF | | . | | . |
| 0360 | 517.1010.S Concrete Staining (structure) 0111. S-40-782 **P** | 286.000 SF | | . | | . |
| 0361 | 517.1010.S Concrete Staining (structure) 0112. S-40-787 **P** | 290.000 SF | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0362 | 517.1010.S Concrete Staining (structure) 0113. S-67-47 **P** | 961.000 SF | | . | | . |
| 0363 | 517.1015.S Concrete Staining Multi-Color (structure) 0001. B-40-870 | 615.000 SF | | . | | . |
| 0364 | 517.1015.S Concrete Staining Multi-Color (structure) 0002. R-40-525 | 13,015.000 SF | | . | | . |
| 0365 | 517.1015.S Concrete Staining Multi-Color (structure) 0003. R-40-529 | 295.000 SF | | . | | . |
| 0366 | 517.1015.S Concrete Staining Multi-Color (structure) 0004. R-40-532 | 12,338.000 SF | | . | | . |
| 0367 | 517.1015.S Concrete Staining Multi-Color (structure) 0005. R-40-534 | 4,103.000 SF | | . | | . |
| 0368 | 517.1015.S Concrete Staining Multi-Color (structure) 0006. R-40-540 | 59,111.000 SF | | . | | . |
| 0369 | 517.1015.S Concrete Staining Multi-Color (structure) 0007. Minor Retaining Wall R-2 | 885.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0370 | 517.1015.S Concrete Staining Multi-Color (structure) 0008. R-40-524 | 6,195.000 SF | | . | | . |
| 0371 | 517.1050.S Architectural Surface Treatment (structure) 0001. R-40-467 **P** | 5,635.000 SF | | . | | . |
| 0372 | 517.1050.S Architectural Surface Treatment (structure) 0002. R-40-468 **P** | 3,400.000 SF | | . | | . |
| 0373 | 517.1050.S Architectural Surface Treatment (structure) 0003. R-40-469 **P** | 1,240.000 SF | | . | | . |
| 0374 | 517.1050.S Architectural Surface Treatment (structure) 0004. R-40-470 **P** | 1,525.000 SF | | . | | . |
| 0375 | 517.1050.S Architectural Surface Treatment (structure) 0005. R-40-497 **P** | 2,440.000 SF | | . | | . |
| 0376 | 517.1050.S Architectural Surface Treatment (structure) 0006. R-40-498 **P** | 10,160.000 SF | | . | | . |
| 0377 | 517.1050.S Architectural Surface Treatment (structure) 0007. R-40-505 **P** | 6,004.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0378 | 517.1050.S Architectural Surface Treatment (structure) 0008. R-40-507 **P** | 7,520.000 SF | | . | | . |
| 0379 | 517.1050.S Architectural Surface Treatment (structure) 0009. R-40-509 **P** | 9,785.000 SF | | . | | . |
| 0380 | 517.1050.S Architectural Surface Treatment (structure) 0011. R-40-511 **P** | 1,900.000 SF | | . | | . |
| 0381 | 517.1050.S Architectural Surface Treatment (structure) 0012. R-40-516 **P** | 13,950.000 SF | | . | | . |
| 0382 | 517.1050.S Architectural Surface Treatment (structure) 0013. R-40-518 **P** | 6,030.000 SF | | . | | . |
| 0383 | 517.1050.S Architectural Surface Treatment (structure) 0014. R-40-520 **P** | 2,504.000 SF | | . | | . |
| 0384 | 517.1050.S Architectural Surface Treatment (structure) 0015. R-40-522 **P** | 2,845.000 SF | | . | | . |
| 0385 | 517.1050.S Architectural Surface Treatment (structure) 0016. R-40-524 **P** | 8,015.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0386 | 517.1050.S Architectural Surface Treatment (structure) 0017. R-40-525 **P** | 7,215.000 SF | | . | | . |
| 0387 | 517.1050.S Architectural Surface Treatment (structure) 0018. R-40-527 **P** | 2,887.000 SF | | . | | . |
| 0388 | 517.1050.S Architectural Surface Treatment (structure) 0019. R-40-529 **P** | 296.000 SF | | . | | . |
| 0389 | 517.1050.S Architectural Surface Treatment (structure) 0020. R-40-532 **P** | 14,226.000 SF | | . | | . |
| 0390 | 517.1050.S Architectural Surface Treatment (structure) 0021. R-40-534 **P** | 4,260.000 SF | | . | | . |
| 0391 | 517.1050.S Architectural Surface Treatment (structure) 0022. R-40-535 **P** | 7,830.000 SF | | . | | . |
| 0392 | 517.1050.S Architectural Surface Treatment (structure) 0023. R-40-540 **P** | 66,657.000 SF | | . | | . |
| 0393 | 517.1050.S Architectural Surface Treatment (structure) 0024. R-40-545 **P** | 21,460.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0394 | 517.1050.S Architectural Surface Treatment (structure) 0025. R-40-547 **P** | 4,523.000 SF | | . | | . |
| 0395 | 517.1050.S Architectural Surface Treatment (structure) 0026. R-40-558 **P** | 2,557.000 SF | | . | | . |
| 0396 | 517.1050.S Architectural Surface Treatment (structure) 0027. R-40-559 **P** | 3,725.000 SF | | . | | . |
| 0397 | 517.1050.S Architectural Surface Treatment (structure) 0028. B-40-850 **P** | 390.000 SF | | . | | . |
| 0398 | 517.1050.S Architectural Surface Treatment (structure) 0029. B-40-858 **P** | 930.000 SF | | . | | . |
| 0399 | 517.1050.S Architectural Surface Treatment (structure) 0030. B-40-870 **P** | 601.000 SF | | . | | . |
| 0400 | 517.1050.S Architectural Surface Treatment (structure) 0031. R-40-495 **P** | 7,275.000 SF | | . | | . |
| 0401 | 517.1050.S Architectural Surface Treatment (structure) 0032. R-40-631 **P** | 1,485.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0402 | 517.1050.S Architectural Surface Treatment (structure) 0033. R-40-655 **P** | 1,040.000 SF | | . | | . |
| 0403 | 517.1050.S Architectural Surface Treatment (structure) 0034. R-40-557 **P** | 7,150.000 SF | | . | | . |
| 0404 | 517.1050.S Architectural Surface Treatment (structure) 0035. Minor Retaining Wall R-2 **P** | 745.000 SF | | . | | . |
| 0405 | 520.8000 Concrete Collars for Pipe | 123.000 EACH | | . | | . |
| 0406 | 522.1012 Apron Endwalls for Culvert Pipe Reinforced Concrete 12-Inch | 1.000 EACH | | . | | . |
| 0407 | 522.1015 Apron Endwalls for Culvert Pipe Reinforced Concrete 15-Inch | 1.000 EACH | | . | | . |
| 0408 | 522.1018 Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch | 6.000 EACH | | . | | . |
| 0409 | 522.1024 Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch | 10.000 EACH | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0410 | 522.1054 Apron Endwalls for Culvert Pipe Reinforced Concrete 54-Inch | 1.000 EACH | | . | | . |
| 0411 | 522.1060 Apron Endwalls for Culvert Pipe Reinforced Concrete 60-Inch | 1.000 EACH | | . | | . |
| 0412 | 531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0001. N-40-61 **P** | 21,610.000 SF | | . | | . |
| 0413 | 531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0002. N-40-62 **P** | 6,900.000 SF | | . | | . |
| 0414 | 531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0003. N-40-63 **P** | 24,250.000 SF | | . | | . |
| 0415 | 531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0004. N-40-64 **P** | 37,450.000 SF | | . | | . |
| 0416 | 531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0006. N-40-66 **P** | 41,240.000 SF | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0417 | 531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0007. N-40-67 **P** | 19,750.000 SF | | . | | . |
| 0418 | 531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0008. N-40-76 **P** | 10,480.000 SF | | . | | . |
| 0419 | 531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0009. N-40-77 **P** | 2,170.000 SF | | . | | . |
| 0420 | 531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0010. N-40-78 **P** | 15,150.000 SF | | . | | . |
| 0421 | 531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0011. N-40-79 **P** | 18,170.000 SF | | . | | . |
| 0422 | 550.0010 Pre-Boring Unconsolidated Materials | 3,027.000 LF | | . | | . |
| 0423 | 550.0020 Pre-Boring Rock or Consolidated Materials | 120.000 LF | | . | | . |
| 0424 | 550.0500 Pile Points | 560.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0425 | 550.1100 Piling Steel HP 10-Inch X 42 Lb | 2,200.000 LF | | . | | . |
| 0426 | 550.1120 Piling Steel HP 12-Inch X 53 Lb | 5,710.000 LF | | . | | . |
| 0427 | 550.1140 Piling Steel HP 14-Inch X 73 Lb | 29,715.000 LF | | . | | . |
| 0428 | 550.2146 Piling CIP Concrete 14 X 0.375-Inch | 8,228.000 LF | | . | | . |
| 0429 | 550.2166 Piling CIP Concrete 16 X 0.375-Inch | 4,770.000 LF | | . | | . |
| 0430 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 16,920.000 LF | | . | | . |
| 0431 | 601.0331 Concrete Curb & Gutter 31-Inch **P** | 12,328.000 LF | | . | | . |
| 0432 | 601.0551 Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type A **P** | 4,951.000 LF | | . | | . |
| 0433 | 601.0553 Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type D **P** | 454.000 LF | | . | | . |
| 0434 | 601.0555 Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type A **P** | 113.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0435 | 601.0557 Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D | 90.000 LF | | . | | . |
| 0436 | 601.0600 Concrete Curb Pedestrian | 754.000 LF | | . | | . |
| 0437 | 602.0410 Concrete Sidewalk 5-Inch **P** | 46,212.000 SF | | . | | . |
| 0438 | 602.0515 Curb Ramp Detectable Warning Field Natural Patina | 392.000 SF | | . | | . |
| 0439 | 602.1500 Concrete Steps | 8.000 SF | | . | | . |
| 0440 | 603.1132 Concrete Barrier Type S32 **P** | 4,038.000 LF | | . | | . |
| 0441 | 603.1142 Concrete Barrier Type S42 **P** | 105,699.000 LF | | . | | . |
| 0442 | 603.1156 Concrete Barrier Type S56 **P** | 210.000 LF | | . | | . |
| 0443 | 603.1242 Concrete Barrier Type S42A **P** | 377.000 LF | | . | | . |
| 0444 | 603.1256 Concrete Barrier Type S56A **P** | 714.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0445 | 603.1332 Concrete Barrier Type S32B **P** | 30.000 LF | | . | | . |
| 0446 | 603.1342 Concrete Barrier Type S42B **P** | 303.000 LF | | . | | . |
| 0447 | 603.1442 Concrete Barrier Type S42C **P** | 6,371.000 LF | | . | | . |
| 0448 | 603.1456 Concrete Barrier Type S56C **P** | 1,553.000 LF | | . | | . |
| 0449 | 603.3113 Concrete Barrier Transition Type NJ32SF to S36 | 3.000 EACH | | . | | . |
| 0450 | 603.3213 Concrete Barrier Transition Type F32SF to S36 | 6.000 EACH | | . | | . |
| 0451 | 603.3513 Concrete Barrier Transition Type S32 to S36 | 6.000 EACH | | . | | . |
| 0452 | 603.3535 Concrete Barrier Transition Type S36 to S42 | 15.000 EACH | | . | | . |
| 0453 | 603.3559 Concrete Barrier Transition Type S42 to S56 | 18.000 EACH | | . | | . |
| 0454 | 603.8000 Concrete Barrier Temporary Precast Delivered | 94,147.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0455 | 603.8125 Concrete Barrier Temporary Precast Installed | 181,047.000 LF | | . | | . |
| 0456 | 604.0400 Slope Paving Concrete | 1,540.000 SY | | . | | . |
| 0457 | 606.0200 Riprap Medium | 531.000 CY | | . | | . |
| 0458 | 606.0300 Riprap Heavy | 640.000 CY | | . | | . |
| 0459 | 606.0400 Riprap Extra-Heavy | 136.000 CY | | . | | . |
| 0460 | 608.0312 Storm Sewer Pipe Reinforced Concrete Class III 12-Inch | 1,561.000 LF | | . | | . |
| 0461 | 608.0315 Storm Sewer Pipe Reinforced Concrete Class III 15-Inch | 591.000 LF | | . | | . |
| 0462 | 608.0318 Storm Sewer Pipe Reinforced Concrete Class III 18-Inch | 3,109.000 LF | | . | | . |
| 0463 | 608.0324 Storm Sewer Pipe Reinforced Concrete Class III 24-Inch | 39,419.000 LF | | . | | . |
| 0464 | 608.0330 Storm Sewer Pipe Reinforced Concrete Class III 30-Inch | 2,202.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0465 | 608.0336 Storm Sewer Pipe Reinforced Concrete Class III 36-Inch | 3,380.000 LF | | . | | . |
| 0466 | 608.0342 Storm Sewer Pipe Reinforced Concrete Class III 42-Inch | 548.000 LF | | . | | . |
| 0467 | 608.0348 Storm Sewer Pipe Reinforced Concrete Class III 48-Inch | 1,139.000 LF | | . | | . |
| 0468 | 608.0354 Storm Sewer Pipe Reinforced Concrete Class III 54-Inch | 1,025.000 LF | | . | | . |
| 0469 | 608.0360 Storm Sewer Pipe Reinforced Concrete Class III 60-Inch | 53.000 LF | | . | | . |
| 0470 | 608.0366 Storm Sewer Pipe Reinforced Concrete Class III 66-Inch | 279.000 LF | | . | | . |
| 0471 | 608.0412 Storm Sewer Pipe Reinforced Concrete Class IV 12-Inch | 30.000 LF | | . | | . |
| 0472 | 608.0418 Storm Sewer Pipe Reinforced Concrete Class IV 18-Inch | 592.000 LF | | . | | . |
| 0473 | 608.0424 Storm Sewer Pipe Reinforced Concrete Class IV 24-Inch | 1,957.000 LF | | . | | . |
| 0474 | 608.0430 Storm Sewer Pipe Reinforced Concrete Class IV 30-Inch | 235.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0475 | 608.0436 Storm Sewer Pipe Reinforced Concrete Class IV 36-Inch | 487.000 LF | | . | | . |
| 0476 | 608.0448 Storm Sewer Pipe Reinforced Concrete Class IV 48-Inch | 83.000 LF | | . | | . |
| 0477 | 608.0454 Storm Sewer Pipe Reinforced Concrete Class IV 54-Inch | 712.000 LF | | . | | . |
| 0478 | 608.0466 Storm Sewer Pipe Reinforced Concrete Class IV 66-Inch | 375.000 LF | | . | | . |
| 0479 | 608.0518 Storm Sewer Pipe Reinforced Concrete Class V 18-Inch | 313.000 LF | | . | | . |
| 0480 | 608.0524 Storm Sewer Pipe Reinforced Concrete Class V 24-Inch | 704.000 LF | | . | | . |
| 0481 | 608.0536 Storm Sewer Pipe Reinforced Concrete Class V 36-Inch | 269.000 LF | | . | | . |
| 0482 | 608.0566 Storm Sewer Pipe Reinforced Concrete Class V 66-Inch | 199.000 LF | | . | | . |
| 0483 | 611.0420 Reconstructing Manholes | 6.000 EACH | | . | | . |
| 0484 | 611.0430 Reconstructing Inlets | 20.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0485 | 611.0535 Manhole Covers<br>Type J-Special | 86.000<br>EACH | | . | | . |
| 0486 | 611.0624 Inlet Covers<br>Type H | 43.000<br>EACH | | . | | . |
| 0487 | 611.0627 Inlet Covers<br>Type HM | 44.000<br>EACH | | . | | . |
| 0488 | 611.0642 Inlet Covers<br>Type MS | 138.000<br>EACH | | . | | . |
| 0489 | 611.0654 Inlet Covers<br>Type V | 488.000<br>EACH | | . | | . |
| 0490 | 611.0663 Inlet Covers<br>Type X | 26.000<br>EACH | | . | | . |
| 0491 | 611.2003 Manholes 3-FT<br>Diameter | 5.000<br>EACH | | . | | . |
| 0492 | 611.2004 Manholes 4-FT<br>Diameter | 31.000<br>EACH | | . | | . |
| 0493 | 611.2005 Manholes 5-FT<br>Diameter | 232.000<br>EACH | | . | | . |
| 0494 | 611.2006 Manholes 6-FT<br>Diameter | 52.000<br>EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0495 | 611.2007 Manholes 7-FT Diameter | 22.000 EACH | | . | | . |
| 0496 | 611.2008 Manholes 8-FT Diameter | 10.000 EACH | | . | | . |
| 0497 | 611.3003 Inlets 3-FT Diameter | 22.000 EACH | | . | | . |
| 0498 | 611.3004 Inlets 4-FT Diameter | 386.000 EACH | | . | | . |
| 0499 | 611.3225 Inlets 2x2.5-FT | 40.000 EACH | | . | | . |
| 0500 | 611.3230 Inlets 2x3-FT | 4.000 EACH | | . | | . |
| 0501 | 611.3901 Inlets Median 1 Grate | 44.000 EACH | | . | | . |
| 0502 | 611.3902 Inlets Median 2 Grate | 47.000 EACH | | . | | . |
| 0503 | 611.8110 Adjusting Manhole Covers | 6.000 EACH | | . | | . |
| 0504 | 611.8115 Adjusting Inlet Covers | 16.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0505 | 611.8120.S Cover Plates Temporary | 39.000 EACH | | . | | . |
| 0506 | 611.9800.S Pipe Grates | 11.000 EACH | | . | | . |
| 0507 | 612.0106 Pipe Underdrain 6-Inch | 120.000 LF | | . | | . |
| 0508 | 612.0206 Pipe Underdrain Unperforated 6-Inch | 2,193.000 LF | | . | | . |
| 0509 | 612.0406 Pipe Underdrain Wrapped 6-Inch | 22,868.000 LF | | . | | . |
| 0510 | 612.0806 Apron Endwalls for Underdrain Reinforced Concrete 6-Inch | 5.000 EACH | | . | | . |
| 0511 | 614.0800 Crash Cushions Permanent | 1.000 EACH | | . | | . |
| 0512 | 614.0805 Crash Cushions Permanent Low Maintenance | 16.000 EACH | | . | | . |
| 0513 | 614.0905 Crash Cushions Temporary | 103.000 EACH | | . | | . |
| 0514 | 614.0950 Replacing Guardrail Posts and Blocks | 30.000 EACH | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0515 | 614.0951 Replacing Guardrail Rail and Hardware | 500.000 LF | | . | | . |
| 0516 | 614.2300 MGS Guardrail 3 | 443.000 LF | | . | | . |
| 0517 | 614.2500 MGS Thrie Beam Transition | 352.000 LF | | . | | . |
| 0518 | 614.2610 MGS Guardrail Terminal EAT | 10.000 EACH | | . | | . |
| 0519 | 614.2620 MGS Guardrail Terminal Type 2 | 2.000 EACH | | . | | . |
| 0520 | 616.0206 Fence Chain Link 6-FT | 20,769.000 LF | | . | | . |
| 0521 | 616.0208 Fence Chain Link 8-FT | 1,640.000 LF | | . | | . |
| 0522 | 616.0329 Gates Chain Link (width) 0001. 12-Ft | 21.000 EACH | | . | | . |
| 0523 | 616.0329 Gates Chain Link (width) 0002. 30-Ft | 5.000 EACH | | . | | . |
| 0524 | 616.0329 Gates Chain Link (width) 0003. 15-Ft | 3.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0525 | 616.0700.S Fence Safety | 5,000.000 LF | | . | | . |
| 0526 | 619.1000 Mobilization | 1.000 EACH | | . | | . |
| 0527 | 620.0100 Concrete Corrugated Median | 167.000 SF | | . | | . |
| 0528 | 620.0300 Concrete Median Sloped Nose **P** | 860.000 SF | | . | | . |
| 0529 | 623.0200 Dust Control Surface Treatment | 703,860.000 SY | | . | | . |
| 0530 | 624.0100 Water | 4,850.000 MGAL | | . | | . |
| 0531 | 625.0100 Topsoil **P** | 2,560.000 SY | | . | | . |
| 0532 | 628.1104 Erosion Bales | 2,326.000 EACH | | . | | . |
| 0533 | 628.1504 Silt Fence | 36,372.000 LF | | . | | . |
| 0534 | 628.1520 Silt Fence Maintenance | 36,372.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0535 | 628.1905 Mobilizations Erosion Control | 63.000 EACH | | . | | . |
| 0536 | 628.1910 Mobilizations Emergency Erosion Control | 33.000 EACH | | . | | . |
| 0537 | 628.2004 Erosion Mat Class I Type B | 444,336.000 SY | | . | | . |
| 0538 | 628.2023 Erosion Mat Class II Type B | 67,610.000 SY | | . | | . |
| 0539 | 628.2027 Erosion Mat Class II Type C | 9,258.000 SY | | . | | . |
| 0540 | 628.6505 Soil Stabilizer Type A | 1.000 ACRE | | . | | . |
| 0541 | 628.6510 Soil Stabilizer Type B | 18.700 ACRE | | . | | . |
| 0542 | 628.7005 Inlet Protection Type A | 2,202.000 EACH | | . | | . |
| 0543 | 628.7010 Inlet Protection Type B | 506.000 EACH | | . | | . |
| 0544 | 628.7015 Inlet Protection Type C | 472.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0545 | 628.7020 Inlet Protection Type D | 2,176.000 EACH | | . | | . |
| 0546 | 628.7504 Temporary Ditch Checks | 7,433.000 LF | | . | | . |
| 0547 | 628.7560 Tracking Pads | 96.000 EACH | | . | | . |
| 0548 | 628.7570 Rock Bags | 788.000 EACH | | . | | . |
| 0549 | 629.0205 Fertilizer Type A | 15.500 CWT | | . | | . |
| 0550 | 629.0210 Fertilizer Type B | 244.200 CWT | | . | | . |
| 0551 | 630.0130 Seeding Mixture No. 30 | 4,790.000 LB | | . | | . |
| 0552 | 630.0180 Seeding Mixture No. 80 | 194.000 LB | | . | | . |
| 0553 | 630.0200 Seeding Temporary | 5,492.000 LB | | . | | . |
| 0554 | 631.0300 Sod Water | 191.600 MGAL | | . | | . |
| 0555 | 631.1000 Sod Lawn | 8,523.000 SY | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0556 | 632.0101 Trees (species) (size) (root) 0001. Catalpa, Northern B&B 2 Inch Cal | 2.000 EACH | | . | | . |
| 0557 | 632.0101 Trees (species) (size) (root) 0003. Coffeetree, Kentucky B&B 2 Inch Ca | 5.000 EACH | | . | | . |
| 0558 | 632.0101 Trees (species) (size) (root) 0005. Hackberry, Common B&B 2 Inch Cal | 8.000 EACH | | . | | . |
| 0559 | 632.0101 Trees (species) (size) (root) 0007. Honeylocust, Skyline B&B 2 Inch Ca | 6.000 EACH | | . | | . |
| 0560 | 632.0101 Trees (species) (size) (root) 0009. Oak, Swamp White B&B 2 Inch Cal | 7.000 EACH | | . | | . |
| 0561 | 632.0101 Trees (species) (size) (root) 0011. Basswood, American B&B 2 Inch Cal | 7.000 EACH | | . | | . |
| 0562 | 632.0101 Trees (species) (size) (root) 0013. Elm, Jefferson B&B 2 Inch Cal | 9.000 EACH | | . | | . |
| 0563 | 632.0101 Trees (species) (size) (root) 0015. Crabapple, Prairifire B&B 2 Inch Cal | 3.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0564 | 632.0101 Trees (species) (size) (root) 0017. Crabapple, Robinson B&B 2 Inch Cal | 6.000 EACH | | . | | . |
| 0565 | 632.0101 Trees (species) (size) (root) 0019. Redbud, Forest Pansy B&B 2 Inch Ca | 3.000 EACH | | . | | . |
| 0566 | 632.0101 Trees (species) (size) (root) 0021. Yellowwood, Perkins Pink B&B 2 Inch Cal | 2.000 EACH | | . | | . |
| 0567 | 632.0101 Trees (species) (size) (root) 0023. Juniper, Mountbatten B&B 5' Ht | 12.000 EACH | | . | | . |
| 0568 | 632.0201 Shrubs (species) (size) (root) 0025. Sumac, Gro Low B&B #3 Cont | 16.000 EACH | | . | | . |
| 0569 | 632.9101 Landscape Planting Surveillance and Care Cycles | 24.000 EACH | | . | | . |
| 0570 | 633.0500 Delineator Reflectors | 820.000 EACH | | . | | . |
| 0571 | 633.1000 Delineator Brackets | 820.000 EACH | | . | | . |
| 0572 | 633.5200 Markers Culvert End | 19.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0573 | 634.0618 Posts Wood 4x6-Inch X 18-FT | 117.000 EACH | | . | | . |
| 0574 | 634.0620 Posts Wood 4x6-Inch X 20-FT | 1.000 EACH | | . | | . |
| 0575 | 634.0622 Posts Wood 4x6-Inch X 22-FT | 82.000 EACH | | . | | . |
| 0576 | 634.0816 Posts Tubular Steel 2x2-Inch X 16-FT | 124.000 EACH | | . | | . |
| 0577 | 634.0885 Posts Tubular Steel 2x2-Inch X 8.5-FT | 69.000 EACH | | . | | . |
| 0578 | 635.0200 Sign Supports Structural Steel HS | 30,600.000 LB | | . | | . |
| 0579 | 635.0300 Sign Supports Replacing Base Connection Bolts | 4.000 EACH | | . | | . |
| 0580 | 636.0100 Sign Supports Concrete Masonry **P** | 2,070.200 CY | | . | | . |
| 0581 | 636.0500 Sign Supports Steel Reinforcement | 2,996.000 LB | | . | | . |
| 0582 | 636.1000 Sign Supports Steel Reinforcement HS | 177,905.000 LB | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0583 | 636.1500 Sign Supports Steel Coated Reinforcement HS | 302,770.000 LB | | . | | . |
| 0584 | 637.1210 Signs Type I Reflective H | 155.500 SF | | . | | . |
| 0585 | 637.1220 Signs Type I Reflective SH | 25,125.500 SF | | . | | . |
| 0586 | 637.1230 Signs Type I Reflective F | 90.000 SF | | . | | . |
| 0587 | 637.2210 Signs Type II Reflective H | 4,851.700 SF | | . | | . |
| 0588 | 637.2215 Signs Type II Reflective H Folding | 35.640 SF | | . | | . |
| 0589 | 637.2230 Signs Type II Reflective F | 2,612.750 SF | | . | | . |
| 0590 | 638.2101 Moving Signs Type I | 81.000 EACH | | . | | . |
| 0591 | 638.2102 Moving Signs Type II | 105.000 EACH | | . | | . |
| 0592 | 638.2601 Removing Signs Type I | 60.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0593 | 638.2602 Removing Signs Type II | 231.000 EACH | | . | | . |
| 0594 | 638.3000 Removing Small Sign Supports | 240.000 EACH | | . | | . |
| 0595 | 638.3100 Removing Structural Steel Sign Supports | 62.000 EACH | | . | | . |
| 0596 | 641.0100 Sign Bridge Single Pole Sign Support One Sign (structure) 0001. S-40-782 | LUMP | LUMP | | | . |
| 0597 | 641.0100 Sign Bridge Single Pole Sign Support One Sign (structure) 0002. S-40-787 | LUMP | LUMP | | | . |
| 0598 | 641.1200 Sign Bridge Cantilevered (structure) 0001. S-40-11 | LUMP | LUMP | | | . |
| 0599 | 641.1200 Sign Bridge Cantilevered (structure) 0003. S-40-15 | LUMP | LUMP | | | . |
| 0600 | 641.1200 Sign Bridge Cantilevered (structure) 0004. S-40-26 | LUMP | LUMP | | | . |
| 0601 | 641.1200 Sign Bridge Cantilevered (structure) 0005. S-40-29 | LUMP | LUMP | | | . |
| 0602 | 641.1200 Sign Bridge Cantilevered (structure) 0006. S-40-30 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0603 | 641.1200 Sign Bridge Cantilevered (structure) 0007. S-40-31 | LUMP | LUMP | | | . |
| 0604 | 641.1200 Sign Bridge Cantilevered (structure) 0008. S-40-35 | LUMP | LUMP | | | . |
| 0605 | 641.1200 Sign Bridge Cantilevered (structure) 0009. S-40-39 | LUMP | LUMP | | | . |
| 0606 | 641.1200 Sign Bridge Cantilevered (structure) 0010. S-40-40 | LUMP | LUMP | | | . |
| 0607 | 641.1200 Sign Bridge Cantilevered (structure) 0011. S-40-41 | LUMP | LUMP | | | . |
| 0608 | 641.1200 Sign Bridge Cantilevered (structure) 0012. S-40-42 | LUMP | LUMP | | | . |
| 0609 | 641.1200 Sign Bridge Cantilevered (structure) 0013. S-40-46 | LUMP | LUMP | | | . |
| 0610 | 641.1200 Sign Bridge Cantilevered (structure) 0014. S-40-52 | LUMP | LUMP | | | . |
| 0611 | 641.1200 Sign Bridge Cantilevered (structure) 0015. S-40-74 | LUMP | LUMP | | | . |
| 0612 | 641.1200 Sign Bridge Cantilevered (structure) 0016. S-40-82 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0613 | 641.1200 Sign Bridge Cantilevered (structure) 0017. S-40-102 | LUMP | LUMP | | | . |
| 0614 | 641.1200 Sign Bridge Cantilevered (structure) 0018. S-40-106 | LUMP | LUMP | | | . |
| 0615 | 641.1200 Sign Bridge Cantilevered (structure) 0019. S-40-110 | LUMP | LUMP | | | . |
| 0616 | 641.1200 Sign Bridge Cantilevered (structure) 0020. S-40-111 | LUMP | LUMP | | | . |
| 0617 | 641.1200 Sign Bridge Cantilevered (structure) 0021. S-40-113 | LUMP | LUMP | | | . |
| 0618 | 641.1200 Sign Bridge Cantilevered (structure) 0022. S-40-114 | LUMP | LUMP | | | . |
| 0619 | 641.1200 Sign Bridge Cantilevered (structure) 0023. S-40-115 | LUMP | LUMP | | | . |
| 0620 | 641.1200 Sign Bridge Cantilevered (structure) 0024. S-40-152 | LUMP | LUMP | | | . |
| 0621 | 641.1200 Sign Bridge Cantilevered (structure) 0031. S-40-861 | LUMP | LUMP | | | . |
| 0622 | 641.1200 Sign Bridge Cantilevered (structure) 0032. S-40-862 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0623 | 641.6600 Sign Bridge (structure) 0001. S-40-10 | LUMP | LUMP | | | . |
| 0624 | 641.6600 Sign Bridge (structure) 0002. S-40-19 | LUMP | LUMP | | | . |
| 0625 | 641.6600 Sign Bridge (structure) 0003. S-40-20 | LUMP | LUMP | | | . |
| 0626 | 641.6600 Sign Bridge (structure) 0004. S-40-23 | LUMP | LUMP | | | . |
| 0627 | 641.6600 Sign Bridge (structure) 0005. S-40-33 | LUMP | LUMP | | | . |
| 0628 | 641.6600 Sign Bridge (structure) 0006. S-40-34 | LUMP | LUMP | | | . |
| 0629 | 641.6600 Sign Bridge (structure) 0007. S-40-45 | LUMP | LUMP | | | . |
| 0630 | 641.6600 Sign Bridge (structure) 0008. S-40-53 | LUMP | LUMP | | | . |
| 0631 | 641.6600 Sign Bridge (structure) 0009. S-40-55 | LUMP | LUMP | | | . |
| 0632 | 641.6600 Sign Bridge (structure) 0010. S-40-80 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0633 | 641.6600 Sign Bridge (structure) 0011. S-40-81 | LUMP | LUMP | | | . |
| 0634 | 641.6600 Sign Bridge (structure) 0012. S-40-84 | LUMP | LUMP | | | . |
| 0635 | 641.6600 Sign Bridge (structure) 0013. S-40-86 | LUMP | LUMP | | | . |
| 0636 | 641.6600 Sign Bridge (structure) 0014. S-40-91 | LUMP | LUMP | | | . |
| 0637 | 641.6600 Sign Bridge (structure) 0015. S-40-93 | LUMP | LUMP | | | . |
| 0638 | 641.6600 Sign Bridge (structure) 0016. S-40-96 | LUMP | LUMP | | | . |
| 0639 | 641.6600 Sign Bridge (structure) 0017. S-40-97 | LUMP | LUMP | | | . |
| 0640 | 641.6600 Sign Bridge (structure) 0018. S-40-98 | LUMP | LUMP | | | . |
| 0641 | 641.6600 Sign Bridge (structure) 0019. S-40-103 | LUMP | LUMP | | | . |
| 0642 | 641.6600 Sign Bridge (structure) 0020. S-40-105 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0643 | 641.6600 Sign Bridge (structure) 0021. S-40-112 | LUMP | LUMP | | | . |
| 0644 | 641.6600 Sign Bridge (structure) 0023. S-67-47 | LUMP | LUMP | | | . |
| 0645 | 641.6600 Sign Bridge (structure) 0024. S-40-3 | LUMP | LUMP | | | . |
| 0646 | 641.6600 Sign Bridge (structure) 0025. S-40-8 | LUMP | LUMP | | | . |
| 0647 | 641.6600 Sign Bridge (structure) 0026. S-40-13 | LUMP | LUMP | | | . |
| 0648 | 641.8100 Overhead Sign Support (structure) 0001. S-40-955 | LUMP | LUMP | | | . |
| 0649 | 641.8100 Overhead Sign Support (structure) 0002. S-40-957 | LUMP | LUMP | | | . |
| 0650 | 641.8100 Overhead Sign Support (structure) 0003. S-40-965 | LUMP | LUMP | | | . |
| 0651 | 641.8100 Overhead Sign Support (structure) 0004. S-40-973 | LUMP | LUMP | | | . |
| 0652 | 641.8100 Overhead Sign Support (structure) 0005. S-40-975 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0653 | 641.8100 Overhead Sign Support (structure) 0006. S-40-138 | LUMP | LUMP | | | . |
| 0654 | 643.0200 Traffic Control Surveillance and Maintenance (project) 0001. 1060-33-81 | 1,033.000 DAY | | . | | . |
| 0655 | 643.0200 Traffic Control Surveillance and Maintenance (project) 0002. 1060-34-82 | 86.000 DAY | | . | | . |
| 0656 | 643.0300 Traffic Control Drums | 1,274,799 DAY | | . | | . |
| 0657 | 643.0410 Traffic Control Barricades Type II | 6,024.000 DAY | | . | | . |
| 0658 | 643.0420 Traffic Control Barricades Type III | 123,585.000 DAY | | . | | . |
| 0659 | 643.0500 Traffic Control Flexible Tubular Marker Posts | 148.000 EACH | | . | | . |
| 0660 | 643.0600 Traffic Control Flexible Tubular Marker Bases | 148.000 EACH | | . | | . |
| 0661 | 643.0705 Traffic Control Warning Lights Type A | 247,227.000 DAY | | . | | . |
| 0662 | 643.0715 Traffic Control Warning Lights Type C | 167,820.000 DAY | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0663 | 643.0800 Traffic Control Arrow Boards | 8,926.000 DAY | | . | | . |
| 0664 | 643.0900 Traffic Control Signs | 565,771.000 DAY | | . | | . |
| 0665 | 643.0910 Traffic Control Covering Signs Type I | 124.000 EACH | | . | | . |
| 0666 | 643.0920 Traffic Control Covering Signs Type II | 55.000 EACH | | . | | . |
| 0667 | 643.1000 Traffic Control Signs Fixed Message | 8,611.000 SF | | . | | . |
| 0668 | 643.1050 Traffic Control Signs PCMS | 9,556.000 DAY | | . | | . |
| 0669 | 643.1055.S Truck or Trailer Mounted Attenuator 0001. 1060-33-81 | 1,000.000 DAY | | . | | . |
| 0670 | 643.2000 Traffic Control Detour (project) 0001. 1060-33-81 | 1.000 EACH | | . | | . |
| 0671 | 643.2000 Traffic Control Detour (project) 0002. 1060-34-82 | 1.000 EACH | | . | | . |
| 0672 | 643.3000 Traffic Control Detour Signs | 897,738.000 DAY | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0673 | 645.0111 Geotextile Fabric Type DF Schedule A **P** | 162.000 SY | | . | | . |
| 0674 | 645.0112 Geotextile Fabric Type DF Schedule B **P** | 3,931.000 SY | | . | | . |
| 0675 | 645.0120 Geotextile Fabric Type HR | 2,178.000 SY | | . | | . |
| 0676 | 646.0106 Pavement Marking Epoxy 4-Inch | 123,692.000 LF | | . | | . |
| 0677 | 646.0126 Pavement Marking Epoxy 8-Inch | 2,443.000 LF | | . | | . |
| 0678 | 646.0600 Removing Pavement Markings | 139,765.000 LF | | . | | . |
| 0679 | 646.0841.S Pavement Marking Grooved Wet Reflective Contrast Tape 4-Inch **P** | 58,014.000 LF | | . | | . |
| 0680 | 646.0843.S Pavement Marking Grooved Wet Reflective Contrast Tape 8-Inch **P** | 59,589.000 LF | | . | | . |
| 0681 | 646.0883.S Pavement Marking Grooved Wet Reflective Tape 8-Inch **P** | 1,163.000 LF | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0682 | 646.2304.S Pavement Marking Grooved Wet Reflective Epoxy 4-Inch **P** | 187,373.000 LF | | . | | . |
| 0683 | 647.0166 Pavement Marking Arrows Epoxy Type 2 | 4.000 EACH | | . | | . |
| 0684 | 647.0196 Pavement Marking Arrows Epoxy Type 5 | 2.000 EACH | | . | | . |
| 0685 | 647.0356 Pavement Marking Words Epoxy | 2.000 EACH | | . | | . |
| 0686 | 647.0456 Pavement Marking Curb Epoxy | 215.000 LF | | . | | . |
| 0687 | 647.0606 Pavement Marking Island Nose Epoxy | 9.000 EACH | | . | | . |
| 0688 | 647.0726 Pavement Marking Diagonal Epoxy 12-Inch | 25,696.000 LF | | . | | . |
| 0689 | 647.0746 Pavement Marking Diagonal Epoxy 24-Inch | 5,857.000 LF | | . | | . |
| 0690 | 649.0100 Temporary Pavement Marking 4-Inch | 20,000.000 LF | | . | | . |
| 0691 | 649.0200 Temporary Pavement Marking Reflective Paint 4-Inch | 26,180.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0692 | 649.0400 Temporary Pavement Marking Removable Tape 4-Inch | 41,245.000 LF | | . | | . |
| 0693 | 649.0701 Temporary Pavement Marking 8-Inch | 5,155.000 LF | | . | | . |
| 0694 | 649.0801 Temporary Pavement Marking Removable Tape 8-Inch | 4,660.000 LF | | . | | . |
| 0695 | 649.2100 Temporary Raised Pavement Markers | 2,592.000 EACH | | . | | . |
| 0696 | 652.0110 Conduit Rigid Metallic 1-Inch | 76.000 LF | | . | | . |
| 0697 | 652.0125 Conduit Rigid Metallic 2-Inch | 1,265.000 LF | | . | | . |
| 0698 | 652.0210 Conduit Rigid Nonmetallic Schedule 40 1-Inch | 8.000 LF | | . | | . |
| 0699 | 652.0225 Conduit Rigid Nonmetallic Schedule 40 2-Inch | 63,496.000 LF | | . | | . |
| 0700 | 652.0235 Conduit Rigid Nonmetallic Schedule 40 3-Inch | 50,403.000 LF | | . | | . |
| 0701 | 652.0240 Conduit Rigid Nonmetallic Schedule 40 4-Inch | 4.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0702 | 652.0325 Conduit Rigid Nonmetallic Schedule 80 2-Inch | 123.000 LF | | . | | . |
| 0703 | 652.0615 Conduit Special 3-Inch | 2,012.000 LF | | . | | . |
| 0704 | 652.0625 Conduit Special 4-Inch | 525.000 LF | | . | | . |
| 0705 | 652.0700.S Install Conduit into Existing Item | 34.000 EACH | | . | | . |
| 0706 | 652.0800 Conduit Loop Detector | 3,340.000 LF | | . | | . |
| 0707 | 653.0105 Pull Boxes Steel 12x24-Inch | 4.000 EACH | | . | | . |
| 0708 | 653.0135 Pull Boxes Steel 24x36-Inch | 63.000 EACH | | . | | . |
| 0709 | 653.0140 Pull Boxes Steel 24x42-Inch | 184.000 EACH | | . | | . |
| 0710 | 653.0220 Junction Boxes 18x6x6-Inch | 40.000 EACH | | . | | . |
| 0711 | 653.0222 Junction Boxes 18x12x6-Inch | 95.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0712 | 653.0905 Removing Pull Boxes | 56.000 EACH | | . | | . |
| 0713 | 654.0101 Concrete Bases Type 1 | 7.000 EACH | | . | | . |
| 0714 | 654.0102 Concrete Bases Type 2 | 1.000 EACH | | . | | . |
| 0715 | 654.0105 Concrete Bases Type 5 | 212.000 EACH | | . | | . |
| 0716 | 654.0110 Concrete Bases Type 10 | 4.000 EACH | | . | | . |
| 0717 | 654.0230 Concrete Control Cabinet Bases Type L30 | 6.000 EACH | | . | | . |
| 0718 | 655.0146 Cable In Duct 4-6 AWG | 4,352.000 LF | | . | | . |
| 0719 | 655.0230 Cable Traffic Signal 5-14 AWG | 1,403.000 LF | | . | | . |
| 0720 | 655.0240 Cable Traffic Signal 7-14 AWG | 2,951.000 LF | | . | | . |
| 0721 | 655.0250 Cable Traffic Signal 9-14 AWG | 1,434.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0722 | 655.0260 Cable Traffic Signal 12-14 AWG | 1,082.000 LF | | . | | . |
| 0723 | 655.0310 Cable Type UF 2-12 AWG | 2,230.000 LF | | . | | . |
| 0724 | 655.0510 Electrical Wire Traffic Signals 12 AWG | 43,704.000 LF | | . | | . |
| 0725 | 655.0610 Electrical Wire Lighting 12 AWG | 106,313.000 LF | | . | | . |
| 0726 | 655.0615 Electrical Wire Lighting 10 AWG | 22,284.000 LF | | . | | . |
| 0727 | 655.0620 Electrical Wire Lighting 8 AWG | 2,977.000 LF | | . | | . |
| 0728 | 655.0625 Electrical Wire Lighting 6 AWG | 293,888.000 LF | | . | | . |
| 0729 | 655.0630 Electrical Wire Lighting 4 AWG | 20,473.000 LF | | . | | . |
| 0730 | 655.0635 Electrical Wire Lighting 2 AWG | 11,369.000 LF | | . | | . |
| 0731 | 655.0645 Electrical Wire Lighting 1/0 AWG | 9,064.000 LF | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0732 | 655.0700 Loop Detector Lead In Cable | 34,415.000 LF | | . | | . |
| 0733 | 655.0800 Loop Detector Wire | 11,985.000 LF | | . | | . |
| 0734 | 656.0200 Electrical Service Meter Breaker Pedestal (location) 2001. CB-RM-40-0038 | LUMP | LUMP | | | . |
| 0735 | 656.0200 Electrical Service Meter Breaker Pedestal (location) 2002. CB-SDS-40-0039A | LUMP | LUMP | | | . |
| 0736 | 656.0200 Electrical Service Meter Breaker Pedestal (location) 2003. CB-SDS-40-0232 | LUMP | LUMP | | | . |
| 0737 | 656.0200 Electrical Service Meter Breaker Pedestal (location) 2004. CB-SDS-40-0050 | LUMP | LUMP | | | . |
| 0738 | 656.0200 Electrical Service Meter Breaker Pedestal (location) 2005. CB-CCTV-40-0218 | LUMP | LUMP | | | . |
| 0739 | 656.0200 Electrical Service Meter Breaker Pedestal (location) 2006. CB-CCTV-40-0217 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0740 | 656.0200 Electrical Service Meter Breaker Pedestal (location) 2007. CB-CCTV-40-0006 | LUMP | LUMP | | | . |
| 0741 | 656.0200 Electrical Service Meter Breaker Pedestal (location) 2008. CB-SDS-40-0230A | LUMP | LUMP | | | . |
| 0742 | 656.0400 Electrical Service Main Lugs Only Meter Pedestal (location) 0001. HL-40-GD | LUMP | LUMP | | | . |
| 0743 | 656.0400 Electrical Service Main Lugs Only Meter Pedestal (location) 0002. HL-40-ZB | LUMP | LUMP | | | . |
| 0744 | 656.0400 Electrical Service Main Lugs Only Meter Pedestal (location) 0003. HL-40-ZT | LUMP | LUMP | | | . |
| 0745 | 656.0400 Electrical Service Main Lugs Only Meter Pedestal (location) 0004. HL-40-ZC | LUMP | LUMP | | | . |
| 0746 | 656.0400 Electrical Service Main Lugs Only Meter Pedestal (location) 0005. HL-40-TV | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0747 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2001. CB-RM-40-0038 | LUMP | LUMP | | | . |
| 0748 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2002. CB-SDS-40-0041A | LUMP | LUMP | | | . |
| 0749 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2003. CB-SDS-40-0039A | LUMP | LUMP | | | . |
| 0750 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2004. CB-SDS-40-0232 | LUMP | LUMP | | | . |
| 0751 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2005. CB-SDS-40-0050 | LUMP | LUMP | | | . |
| 0752 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2006. CB-SDS-40-0052 | LUMP | LUMP | | | . |
| 0753 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2007. CB-CCTV-40-0218 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0754 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2008. CB-RM-40-0024 | LUMP | LUMP | | | . |
| 0755 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2009. CB-RM-40-0106 | LUMP | LUMP | | | . |
| 0756 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2010. CB-CCTV-40-0217 | LUMP | LUMP | | | . |
| 0757 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2011. CB-CCTV-40-0006 | LUMP | LUMP | | | . |
| 0758 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2012. CB-CCTV-40-0220 | LUMP | LUMP | | | . |
| 0759 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2013. CB-SDS-40-0230A | LUMP | LUMP | | | . |
| 0760 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2014. CB-CCTV-40-0101 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0761 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2015. CB-CCTV-40-0219 | LUMP | LUMP | | | . |
| 0762 | 656.0500 Electrical Service Breaker Disconnect Box (location) 2016. CB-CCTV-40-0033 | LUMP | LUMP | | | . |
| 0763 | 657.0210 Transformer Bases Breakaway 15-17 Inch Bolt Circle | 104.000 EACH | | . | | . |
| 0764 | 657.0255 Transformer Bases Breakaway 11 1/2-Inch Bolt Circle | 206.000 EACH | | . | | . |
| 0765 | 657.0305 Poles Type 2 | 1.000 EACH | | . | | . |
| 0766 | 657.0322 Poles Type 5-Aluminum | 269.000 EACH | | . | | . |
| 0767 | 657.0375 Poles Type A | 108.000 EACH | | . | | . |
| 0768 | 657.0605 Luminaire Arms Single Member 4 1/2-Inch Clamp 4-FT | 16.000 EACH | | . | | . |
| 0769 | 657.0610 Luminaire Arms Single Member 4 1/2-Inch Clamp 6-FT | 287.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0770 | 657.0620 Luminaire Arms Single Member 6-Inch Clamp 4-FT | 208.000 EACH | | . | | . |
| 0771 | 657.1345 Install Poles Type 9 | 3.000 EACH | | . | | . |
| 0772 | 657.1350 Install Poles Type 10 | 1.000 EACH | | . | | . |
| 0773 | 657.1515 Install Monotube Arms 15-FT | 1.000 EACH | | . | | . |
| 0774 | 657.1525 Install Monotube Arms 25-FT | 1.000 EACH | | . | | . |
| 0775 | 657.1530 Install Monotube Arms 30-FT | 2.000 EACH | | . | | . |
| 0776 | 657.6005.S Anchor Assemblies Light Poles on Structures | 71.000 EACH | | . | | . |
| 0777 | 659.0802 Plaques Sequence Identification | 913.000 EACH | | . | | . |
| 0778 | 659.1120 Luminaires Utility LED B | 307.000 EACH | | . | | . |
| 0779 | 659.1130 Luminaires Utility LED D | 257.000 EACH | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0780 | 661.0700 Temporary Ramp Meter (location) 2001. Hwy 100 AND IH 94 Removal | LUMP | LUMP | | | . |
| 0781 | 662.1028.S Ramp Closure Gates Hardwired 28-FT | 1.000 EACH | | . | | . |
| 0782 | 662.1032.S Ramp Closure Gates Hardwired 32-FT | 2.000 EACH | | . | | . |
| 0783 | 662.1037.S Ramp Closure Gates Hardwired 37-FT | 2.000 EACH | | . | | . |
| 0784 | 662.1040.S Ramp Closure Gates Hardwired 40-FT | 1.000 EACH | | . | | . |
| 0785 | 670.0100 Field System Integrator 2001. FTMS | LUMP | LUMP | | | . |
| 0786 | 670.0100 Field System Integrator 2021. FTMS | LUMP | LUMP | | | . |
| 0787 | 670.0100 Field System Integrator 3001. Wisconsin Avenue Corridor | LUMP | LUMP | | | . |
| 0788 | 670.0200 ITS Documentation 2001. FTMS | LUMP | LUMP | | | . |
| 0789 | 670.0200 ITS Documentation 2021. FTMS | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0790 | 670.0200 ITS Documentation 3001. Wisconsin Avenue Corridor | LUMP | LUMP | | | . |
| 0791 | 671.0132 Conduit HDPE 3-Duct 2-Inch | 19,150.000 LF | | . | | . |
| 0792 | 671.0232 Conduit HDPE Directional Bore 3-Duct 2-Inch | 915.000 LF | | . | | . |
| 0793 | 672.0100 Base ITS Controller Cabinet | 5.000 EACH | | . | | . |
| 0794 | 672.0230 Base Camera Pole 30-FT | 1.000 EACH | | . | | . |
| 0795 | 672.0250 Base Camera Pole 50-FT | 6.000 EACH | | . | | . |
| 0796 | 672.0280 Base Camera Pole 80-FT | 1.000 EACH | | . | | . |
| 0797 | 673.0105 Communication Vault Type 1 | 28.000 EACH | | . | | . |
| 0798 | 673.0200.S Install ITS Field Cabinet | 5.000 EACH | | . | | . |
| 0799 | 673.0225.S Install Pole Mounted Cabinet | 16.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0800 | 674.0200 Cable Microwave Detector | 18,856.000 LF | | . | | . |
| 0801 | 674.0300 Remove Cable | 21,755.000 LF | | . | | . |
| 0802 | 675.0100 Install Controller Ramp Meter Processor Assembly | 3.000 EACH | | . | | . |
| 0803 | 675.0300 Install Mounted Controller Microwave Detector Assembly | 50.000 EACH | | . | | . |
| 0804 | 675.0400.S Install Ethernet Switch | 17.000 EACH | | . | | . |
| 0805 | 676.0100 Signal Assembly Ramp Control Sidemount | 4.000 EACH | | . | | . |
| 0806 | 676.0105 Signal Assembly Ramp Control Overhead | 11.000 EACH | | . | | . |
| 0807 | 676.0300 Signal Assembly Advance Flasher Type 1 | 5.000 EACH | | . | | . |
| 0808 | 676.0305 Signal Assembly Advance Flasher Type 2 | 1.000 EACH | | . | | . |
| 0809 | 676.9001.S Removing Advance Flasher Assemblies Type 1 | 7.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0810 | 677.0100 Install Camera Pole | 7.000 EACH | | . | | . |
| 0811 | 677.0200 Install Camera Assembly | 9.000 EACH | | . | | . |
| 0812 | 677.9051.S Removing 50-FT Camera Pole | 3.000 EACH | | . | | . |
| 0813 | 677.9200.S Removing CCTV Camera | 3.000 EACH | | . | | . |
| 0814 | 678.0006 Install Fiber Optic Cable Outdoor Plant 6-CT | 15,125.000 LF | | . | | . |
| 0815 | 678.0072 Install Fiber Optic Cable Outdoor Plant 72-CT | 46,700.000 LF | | . | | . |
| 0816 | 678.0300 Fiber Optic Splice | 738.000 EACH | | . | | . |
| 0817 | 678.0400 Fiber Optic Termination | 120.000 EACH | | . | | . |
| 0818 | 678.0500 Communication System Testing 2001. FTMS | LUMP | LUMP | | | . |
| 0819 | 678.0500 Communication System Testing 2021. FTMS | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0820 | 678.0500 Communication System Testing 3001. Wisconsin Avenue Corridor | LUMP | LUMP | | | . |
| 0821 | 690.0150 Sawing Asphalt | 26,418.000 LF | | . | | . |
| 0822 | 690.0250 Sawing Concrete | 23,321.000 LF | | . | | . |
| 0823 | 715.0502 Incentive Strength Concrete Structures | 391,048.000 DOL | 1.00000 | | 391048.00 | |
| 0824 | ASP.1T0A On-the-Job Training Apprentice at $5.00/HR | 22,500.000 HRS | 5.00000 | | 112500.00 | |
| 0825 | ASP.1T0G On-the-Job Training Graduate at $5.00/HR | 22,500.000 HRS | 5.00000 | | 112500.00 | |
| 0826 | SPV.0005 Special 0001. Rootstock Protection | 0.100 ACRE | | . | | . |
| 0827 | SPV.0035 Special 0100. EBS Excavation | 14,736.000 CY | | . | | . |
| 0828 | SPV.0035 Special 0101. EBS Backfill | 14,736.000 CY | | . | | . |
| 0829 | SPV.0035 Special 0700. Excavation, Hauling, And Reuse Of Solid Waste Soil | 6,072.000 CY | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0830 | SPV.0035 Special 4000. HPC Masonry Structures **P** | 31,048.000 CY | | . | | . |
| 0831 | SPV.0035 Special 4010. Concrete Masonry Soldier Pile Footings **P** | 615.000 CY | | . | | . |
| 0832 | SPV.0035 Special 4020. Lightweight Foamed Concrete Fill Grade 1 | 7,464.000 CY | | . | | . |
| 0833 | SPV.0035 Special 4030. Lightweight Foamed Concrete Fill Grade 2 | 3,334.000 CY | | . | | . |
| 0834 | SPV.0035 Special 8001. Detention Basin Clay Lining **P** | 7,277.000 CY | | . | | . |
| 0835 | SPV.0045 Special 0100. Temporary Crosswalk/Sidewalk | 1,858.000 DAY | | . | | . |
| 0836 | SPV.0045 Special 0401. Portable Speed Trailer | 2,208.000 DAY | | . | | . |
| 0837 | SPV.0045 Special 2000. Dynamic Late Merge System | 568.000 DAY | | . | | . |
| 0838 | SPV.0045 Special 2001. Work Zone Construction Traffic Merge Warning System | 1,314.000 DAY | | . | | . |
| 0839 | SPV.0055 Special 0401. Dispute Review Board | 25,000.000 DOL | 1.00000 | | 25000.00 | |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0840 | SPV.0055 Special 0900. Railroad Flagging Reimbursement | 100,000.000 DOL | 1.00000 | | 100000.00 | |
| 0841 | SPV.0060 Special 0003. Exposing Existing Infrastructure Paved Area | 22.000 EACH | | . | | . |
| 0842 | SPV.0060 Special 0004. Exposing Existing Infrastructure Unpaved Area | 22.000 EACH | | . | | . |
| 0843 | SPV.0060 Special 0005. Baseline Cpm Progress Schedule | 1.000 EACH | | . | | . |
| 0844 | SPV.0060 Special 0006. Monthly Cpm Progress Schedule Updates | 31.000 EACH | | . | | . |
| 0845 | SPV.0060 Special 0010. Removing High Mast Lighting Tower Concrete Base | 7.000 EACH | | . | | . |
| 0846 | SPV.0060 Special 0011. Removing High Mast Lighting Tower | 13.000 EACH | | . | | . |
| 0847 | SPV.0060 Special 0013. Shallow Marsh Rootstock | 130.000 EACH | | . | | . |
| 0848 | SPV.0060 Special 0015. Removing Utility Vault | 10.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0849 | SPV.0060 Special 0016. Removing Old Sign Structure S-40-100 | 1.000 EACH | | . | | . |
| 0850 | SPV.0060 Special 0017. Removing Old Sign Structure S-40-133 | 1.000 EACH | | . | | . |
| 0851 | SPV.0060 Special 0018. Removing Old Sign Structure S-40-156 | 1.000 EACH | | . | | . |
| 0852 | SPV.0060 Special 0019. Removing Old Sign Structure S-40-128 | 1.000 EACH | | . | | . |
| 0853 | SPV.0060 Special 0020. Removing Old Sign Structure S-40-213 | 1.000 EACH | | . | | . |
| 0854 | SPV.0060 Special 0021. Removing Old Sign Structure S-40-214 | 1.000 EACH | | . | | . |
| 0855 | SPV.0060 Special 0023. Removing Old Sign Structure S-40-309 | 1.000 EACH | | . | | . |
| 0856 | SPV.0060 Special 0024. Removing Old Sign Structure S-40-35 | 1.000 EACH | | . | | . |
| 0857 | SPV.0060 Special 0026. Removing Old Sign Structure S-40-78 | 1.000 EACH | | . | | . |
| 0858 | SPV.0060 Special 0027. Removing Old Sign Structure S-40-99 | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0859 | SPV.0060 Special 0028. Removing Old Sign Structure S-40-995 | 1.000 EACH | | . | | . |
| 0860 | SPV.0060 Special 0029. Removing Old Sign Structure S-40-996 | 1.000 EACH | | . | | . |
| 0861 | SPV.0060 Special 0101. Temporary Bus Stop Pad | 3.000 EACH | | . | | . |
| 0862 | SPV.0060 Special 0126. Concrete Barrier Type S56A Special Light Pole Base | 7.000 EACH | | . | | . |
| 0863 | SPV.0060 Special 0127. Concrete Barrier Transition Type G1 | 1.000 EACH | | . | | . |
| 0864 | SPV.0060 Special 0128. Concrete Barrier Transition Type G2 | 1.000 EACH | | . | | . |
| 0865 | SPV.0060 Special 0129. Concrete Barrier Transition Type G3 | 1.000 EACH | | . | | . |
| 0866 | SPV.0060 Special 0130. Concrete Barrier Transition Type G4 | 1.000 EACH | | . | | . |
| 0867 | SPV.0060 Special 0131. Concrete Barrier Transition Type G5 | 1.000 EACH | | . | | . |
| 0868 | SPV.0060 Special 0132. Concrete Barrier Transition Type G6 | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0869 | SPV.0060 Special 0133. Concrete Barrier Transition Type G7 | 1.000 EACH | | . | | . |
| 0870 | SPV.0060 Special 0134. Concrete Barrier Transition Type G8 | 1.000 EACH | | . | | . |
| 0871 | SPV.0060 Special 0135. Concrete Barrier Transition Type G9 | 1.000 EACH | | . | | . |
| 0872 | SPV.0060 Special 0136. Concrete Barrier Transition Type G10 | 1.000 EACH | | . | | . |
| 0873 | SPV.0060 Special 0137. Concrete Barrier Transition Type G11 | 1.000 EACH | | . | | . |
| 0874 | SPV.0060 Special 0138. Concrete Barrier Transition Type G12 | 1.000 EACH | | . | | . |
| 0875 | SPV.0060 Special 0139. Concrete Barrier Transition Type G13 | 1.000 EACH | | . | | . |
| 0876 | SPV.0060 Special 0140. Concrete Barrier Transition Type G14 | 1.000 EACH | | . | | . |
| 0877 | SPV.0060 Special 0141. Concrete Barrier Transition Type G15 | 1.000 EACH | | . | | . |
| 0878 | SPV.0060 Special 0142. Concrete Barrier Transition Type G16 | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0879 | SPV.0060 Special 0143. Concrete Barrier Transition Type G17 | 1.000 EACH | | . | | . |
| 0880 | SPV.0060 Special 0144. Concrete Barrier Transition Type G18 | 1.000 EACH | | . | | . |
| 0881 | SPV.0060 Special 0145. Concrete Barrier Transition Type G19 | 1.000 EACH | | . | | . |
| 0882 | SPV.0060 Special 0150. Concrete Barrier Transition Type M1 | 1.000 EACH | | . | | . |
| 0883 | SPV.0060 Special 0151. Concrete Barrier Transition Type M2 | 1.000 EACH | | . | | . |
| 0884 | SPV.0060 Special 0152. Concrete Barrier Transition Type M3 | 1.000 EACH | | . | | . |
| 0885 | SPV.0060 Special 0153. Concrete Barrier Transition Type M4 | 1.000 EACH | | . | | . |
| 0886 | SPV.0060 Special 0154. Concrete Barrier Transition Type M5 | 1.000 EACH | | . | | . |
| 0887 | SPV.0060 Special 0155. Concrete Barrier Transition Type M6 | 2.000 EACH | | . | | . |
| 0888 | SPV.0060 Special 0160. Concrete Barrier Type S32 End Anchor | 21.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0889 | SPV.0060 Special 0162. Concrete Barrier Type S42 End Anchor | 232.000 EACH | | . | | . |
| 0890 | SPV.0060 Special 0164. Concrete Barrier Type S56 End Anchor | 4.000 EACH | | . | | . |
| 0891 | SPV.0060 Special 0166. Concrete Barrier Type S56 Special End Anchor | 1.000 EACH | | . | | . |
| 0892 | SPV.0060 Special 0168. Concrete Barrier Type S56A Special End Anchor | 14.000 EACH | | . | | . |
| 0893 | SPV.0060 Special 0190. Section Corner Monuments Special | 4.000 EACH | | . | | . |
| 0894 | SPV.0060 Special 0302. Pvmnt Marking Contrast Grooved Pre formed Thermoplstc Arrows Type 2 **P** | 17.000 EACH | | . | | . |
| 0895 | SPV.0060 Special 0304. Pvmnt Marking Contrast Grooved Pre formed Thermoplastic Arrows Type 3 **P** | 11.000 EACH | | . | | . |
| 0896 | SPV.0060 Special 0306. Pavement Marking Contrast Grooved Preformed Thermoplastic Arrows Type 4 | 3.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0897 | SPV.0060 Special 0308. Pvmnt Marking Contrast Grooved Pre formed Thermoplastic Arrows Type 5 **P** | 22.000 EACH | | . | | . |
| 0898 | SPV.0060 Special 0310. Pavement Marking Contrast Grooved Preformed Thermoplastic Words | 4.000 EACH | | . | | . |
| 0899 | SPV.0060 Special 0320. Install Temporary Pavement Marking Orange Arrows | 4.000 EACH | | . | | . |
| 0900 | SPV.0060 Special 0322. Truck Cleanout Of Pavement Marking Orange Epoxy | 6.000 EACH | | . | | . |
| 0901 | SPV.0060 Special 0400. Traffic Control Close-Open Freeway Entrance Ramp | 1,200.000 EACH | | . | | . |
| 0902 | SPV.0060 Special 0401. Traffic Control Close-Open Freeway To Freeway System Ramp | 900.000 EACH | | . | | . |
| 0903 | SPV.0060 Special 0402. Traffic Control Interim Freeway Lane Closure | 3,400.000 EACH | | . | | . |
| 0904 | SPV.0060 Special 0403. Traffic Control Local Road Lane Closures | 50.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0905 | SPV.0060 Special 0405. Temporary Sign Portable Support | 15.000 EACH | | . | | . |
| 0906 | SPV.0060 Special 0406. Mobilizations Emergency Pavement Repair | 21.000 EACH | | . | | . |
| 0907 | SPV.0060 Special 0408. Traffic Control Full Freeway Closure | 420.000 EACH | | . | | . |
| 0908 | SPV.0060 Special 0410. Maintaining Signs Fixed Message | 134.000 EACH | | . | | . |
| 0909 | SPV.0060 Special 0412. Maintaining Traffic Control Covering Signs Type 1 | 32.000 | | . | | . |
| 0910 | SPV.0060 Special 0414. Permanent Barricades Type III | 3.000 EACH | | . | | . |
| 0911 | SPV.0060 Special 0416. Sign Support Special Mounting | 54.000 EACH | | . | | . |
| 0912 | SPV.0060 Special 0420. Dynamic Speed Display Sign | 4.000 EACH | | . | | . |
| 0913 | SPV.0060 Special 0422. Moving Dynamic Speed Display Sign | 4.000 EACH | | . | | . |
| 0914 | SPV.0060 Special 0606. Gates Decorative HAST Ground Mounted 12-Ft | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0915 | SPV.0060 Special 0608. Gates decorative HAST Ground Mounted 30-Ft | 1.000 EACH | | . | | . |
| 0916 | SPV.0060 Special 1010. Lamp Disposal High Intensity Discharge | 290.000 EACH | | . | | . |
| 0917 | SPV.0060 Special 1019. Relocating Light Poles, Arms and Luminaires | 6.000 EACH | | . | | . |
| 0918 | SPV.0060 Special 1031. Removing Aluminum Light Poles And Arms-Wauwatosa | 3.000 EACH | | . | | . |
| 0919 | SPV.0060 Special 1032. Removing Concrete Light Poles And Arms-Wauwatosa | 6.000 EACH | | . | | . |
| 0920 | SPV.0060 Special 1033. Removing Aluminum Light Poles, Arms And Luminaires | 111.000 EACH | | . | | . |
| 0921 | SPV.0060 Special 1035. Wood Pole Lighting 60-Ft | 104.000 EACH | | . | | . |
| 0922 | SPV.0060 Special 1036. Poles Wood 60-Ft | 24.000 EACH | | . | | . |
| 0923 | SPV.0060 Special 1037. Poles Wood 35-Ft | 42.000 EACH | | . | | . |
| 0924 | SPV.0060 Special 1040. Removing Poles Wood 60-Ft And Floodlights | 154.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0925 | SPV.0060 Special 1041. Removing Poles Wood 60-Ft | 47.000 EACH | | . | | . |
| 0926 | SPV.0060 Special 1042. Removing Poles Wood 35-Foot | 18.000 EACH | | . | | . |
| 0927 | SPV.0060 Special 1043. Removing Poles Wood 35-Ft And Floodlights | 24.000 EACH | | . | | . |
| 0928 | SPV.0060 Special 1050. Tunnel Luminaire | 319.000 EACH | | . | | . |
| 0929 | SPV.0060 Special 1051. Lighting Control Cabinet Tunnel Lighting | 2.000 EACH | | . | | . |
| 0930 | SPV.0060 Special 1052. Brackets Tunnel Lighting | 44.000 EACH | | . | | . |
| 0931 | SPV.0060 Special 1056. Junction Boxes Steel 18X12X6-Inch Coated | 19.000 EACH | | . | | . |
| 0932 | SPV.0060 Special 1065. Luminaire Utility LED E | 1.000 EACH | | . | | . |
| 0933 | SPV.0060 Special 1066. Salvaging Luminaire LED - DOT | 6.000 EACH | | . | | . |
| 0934 | SPV.0060 Special 1070. Luminaires Floodlight 1000W HPS | 94.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0935 | SPV.0060 Special 1071. Luminaires Floodlight 400W HPS | 67.000 EACH | | . | | . |
| 0936 | SPV.0060 Special 1078. Luminaire (UDL) Wallpack Led | 32.000 EACH | | . | | . |
| 0937 | SPV.0060 Special 1079. Luminaire (UDL) Wallpack LED-West Allis | 9.000 EACH | | . | | . |
| 0938 | SPV.0060 Special 1090. Salvage Lighting Control Cabinets | 11.000 EACH | | . | | . |
| 0939 | SPV.0060 Special 1100. Lighting Control Cabinet 480/277 VAC | 1.000 EACH | | . | | . |
| 0940 | SPV.0060 Special 1102. Lighting Control Cabinet With FTMS Power 480/277 VAC | 2.000 EACH | | . | | . |
| 0941 | SPV.0060 Special 1125. Poles Mount For Probeam Luminaire | 32.000 EACH | | . | | . |
| 0942 | SPV.0060 Special 1126. Concrete Bases Type 10P | 25.000 EACH | | . | | . |
| 0943 | SPV.0060 Special 1127. Probeam Luminaire | 33.000 EACH | | . | | . |
| 0944 | SPV.0060 Special 1128. Pole 13-Foot For Probeam Luminaire | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0945 | SPV.0060 Special 1130. Poles Aluminum Type F | 8.000 EACH | | . | | . |
| 0946 | SPV.0060 Special 1131. Concrete Bases Type B | 104.000 EACH | | . | | . |
| 0947 | SPV.0060 Special 1153. Removing Electrical Service Meter Breaker Pedestal Lighting | 7.000 EACH | | . | | . |
| 0948 | SPV.0060 Special 2001. Ground Rod | 37.000 EACH | | . | | . |
| 0949 | SPV.0060 Special 2002. Removing Ramp Control Signal Assembly Sidemount | 10.000 EACH | | . | | . |
| 0950 | SPV.0060 Special 2003. Removing Controller Cabinet | 5.000 EACH | | . | | . |
| 0951 | SPV.0060 Special 2004. Removing Controller Cabinet Base | 7.000 EACH | | . | | . |
| 0952 | SPV.0060 Special 2005. Removing Controller Ramp Meter Processer Assembly | 1.000 EACH | | . | | . |
| 0953 | SPV.0060 Special 2006. Removing Electrical Service Meter Breaker Pedestal | 4.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0954 | SPV.0060 Special 2007. Removing Communication Vault | 2.000 EACH | | . | | . |
| 0955 | SPV.0060 Special 2008. Install 80-ft Camera Pole | 1.000 EACH | | . | | . |
| 0956 | SPV.0060 Special 2009. Removing Microwave Detector Assembly | 2.000 EACH | | . | | . |
| 0957 | SPV.0060 Special 2010. Installl Portable Video Surveillance System | 1.000 EACH | | . | | . |
| 0958 | SPV.0060 Special 2011. Relocating Portable Video Surveillance System | 4.000 EACH | | . | | . |
| 0959 | SPV.0060 Special 2012. Install Temporary Vehicle Detector Assembly | 7.000 EACH | | . | | . |
| 0960 | SPV.0060 Special 2013. Refocusing Vehicle Detector Assembly | 57.000 EACH | | . | | . |
| 0961 | SPV.0060 Special 2014. Removing Temporary Vehicle Detector Assembly | 18.000 EACH | | . | | . |
| 0962 | SPV.0060 Special 2015. Relocating Temporary Vehicle Detector Assembly | 6.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0963 | SPV.0060 Special 2016. Removing Electronic Blank Out Sign Assembly | 1.000 EACH | | . | | . |
| 0964 | SPV.0060 Special 2017. Install Antenna | 2.000 EACH | | . | | . |
| 0965 | SPV.0060 Special 2018. Install Wireless Modem | 3.000 EACH | | . | | . |
| 0966 | SPV.0060 Special 2019. Removing Wireless Modem | 1.000 EACH | | . | | . |
| 0967 | SPV.0060 Special 2020. Salvage Microwave Detector Assembly | 2.000 EACH | | . | | . |
| 0968 | SPV.0060 Special 2021. Install Salvaged Microwave Detector Assembly | 2.000 EACH | | . | | . |
| 0969 | SPV.0060 Special 2022. Salvage Wireless Traffic Sensor Repeater | 1.000 EACH | | . | | . |
| 0970 | SPV.0060 Special 2023. Install Wireless Traffic Sensor Repeater | 1.000 EACH | | . | | . |
| 0971 | SPV.0060 Special 2024. Salvage Poles Type 5 | 1.000 EACH | | . | | . |
| 0972 | SPV.0060 Special 2025. Installed Salvaged Poles Type 5 | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0973 | SPV.0060 Special 2026. Install Conduit Into Buried Vault | 1.000 EACH | | . | | . |
| 0974 | SPV.0060 Special 2027. Install Temporary Traffic Camera Assembly | 2.000 EACH | | . | | . |
| 0975 | SPV.0060 Special 2028. Temporary Poles Wood 40-Foot | 7.000 EACH | | . | | . |
| 0976 | SPV.0060 Special 2029. Install 5.8 GHz Ethernet Bridge | 2.000 EACH | | . | | . |
| 0977 | SPV.0060 Special 2030. Install Cabinet Heater And Thermostat | 5.000 EACH | | . | | . |
| 0978 | SPV.0060 Special 2031. Install Wavetronix Click 200 Module | 9.000 EACH | | . | | . |
| 0979 | SPV.0060 Special 2032. Install Wavetronix Power Module | 9.000 EACH | | . | | . |
| 0980 | SPV.0060 Special 2033. Install Wavetronix Detector Module | 9.000 EACH | | . | | . |
| 0981 | SPV.0060 Special 2034. Install Cellular Antenna | 9.000 EACH | | . | | . |
| 0982 | SPV.0060 Special 2035. Install Piezoelectric Axle Sensor | 8.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0983 | SPV.0060 Special 2037. Concrete Control Cabinet Base ATR Special Type 7 | 1.000 EACH | | . | | . |
| 0984 | SPV.0060 Special 2038. Install ATR Controller Cabinet | 1.000 EACH | | . | | . |
| 0985 | SPV.0060 Special 2040. Wireless Traffic Sensor | 12.000 EACH | | . | | . |
| 0986 | SPV.0060 Special 2042. Wireless Traffic Sensor Repeater | 1.000 EACH | | . | | . |
| 0987 | SPV.0060 Special 2043. Wireless Traffic Sensor Contact Closure Module | 1.000 EACH | | . | | . |
| 0988 | SPV.0060 Special 2044. Wireless Traffic Sensor Contact Closure Extension Card | 3.000 EACH | | . | | . |
| 0989 | SPV.0060 Special 2045. Removing Temporary Traffic Camera Assembly | 2.000 EACH | | . | | . |
| 0990 | SPV.0060 Special 2050. INSTALL FIBER OPTIC MEDIA CONVERTER | 2.000 EACH | | . | | . |
| 0991 | SPV.0060 Special 2052. Multi-cell Conduit Connection | 1.000 EACH | | . | | . |
| 0992 | SPV.0060 Special 3001. Supplemental Traffic Signal Cabinet Concrete Base | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0993 | SPV.0060 Special 3101. Install Traffic Cabinet Base | 1.000 EACH | | . | | . |
| 0994 | SPV.0060 Special 3102. Install Traffic Signal Base | 11.000 EACH | | . | | . |
| 0995 | SPV.0060 Special 3103. Traffic Polymer Concrete Vault 13-In X 24-In X 18-In | 6.000 EACH | | . | | . |
| 0996 | SPV.0060 Special 3104. Traffic Polymer Concrete Vault 17-In X 30-In X 18-In | 5.000 EACH | | . | | . |
| 0997 | SPV.0060 Special 4100. Anchor Assemblies Sign Bridge Structures | 8.000 EACH | | . | | . |
| 0998 | SPV.0060 Special 4105. Anchor Assemblies Noise Barrier Structures | 696.000 EACH | | . | | . |
| 0999 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 95.000 EACH | | . | | . |
| 1000 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 95.000 EACH | | . | | . |
| 1001 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 54.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1002 | SPV.0060 Special 4120. Bearings High-Load Multi-Rotational Fixed | 32.000 EACH | | . | | . |
| 1003 | SPV.0060 Special 4125. Bearings High-Load Multi-Rotational Guided | 78.000 EACH | | . | | . |
| 1004 | SPV.0060 Special 4130. Floor Drain Special | 32.000 EACH | | . | | . |
| 1005 | SPV.0060 Special 4135. Anchor Slab Inlet Cover Special | 38.000 EACH | | . | | . |
| 1006 | SPV.0060 Special 4140. Tieback Anchors | 115.000 EACH | | . | | . |
| 1007 | SPV.0060 Special 4145. Tieback Anchors Performance Tests | 7.000 EACH | | . | | . |
| 1008 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 12.000 EACH | | . | | . |
| 1009 | SPV.0060 Special 4155. Tip Testing Drilled Foundation Shaft 59. 06-Inch | 12.000 EACH | | . | | . |
| 1010 | SPV.0060 Special 4165. Thermal Integrity Profiler (Tip) Testing Wall Secant Pile 47. 24-Inch | 6.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1011 | SPV.0060 Special 4170. Polymer Concrete Pull Boxes 13X24X18-Inch | 3.000 EACH | | . | | . |
| 1012 | SPV.0060 Special 4175. Concrete Base Sleeves | 3.000 EACH | | . | | . |
| 1013 | SPV.0060 Special 4180. Bar Couplers No. 14 | 330.000 EACH | | . | | . |
| 1014 | SPV.0060 Special 4185. Temporary Access Gates | 2.000 EACH | | . | | . |
| 1015 | SPV.0060 Special 5000. Permanent Connection To Existing 24-Inch Water Main | 2.000 EACH | | . | | . |
| 1016 | SPV.0060 Special 5001. Adjusting Water Valve Wauwatosa | 5.000 EACH | | . | | . |
| 1017 | SPV.0060 Special 5002. Adjusting Water Valve Milwaukee | 2.000 EACH | | . | | . |
| 1018 | SPV.0060 Special 5003. Adjusting Water Valve West Allis | 9.000 EACH | | . | | . |
| 1019 | SPV.0060 Special 5004. Cut And Cap Water Main | 2.000 EACH | | . | | . |
| 1020 | SPV.0060 Special 5005. Air Release Valve | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1021 | SPV.0060 Special 5006. Abandoning Air Release Manhole | 1.000 EACH | | . | | . |
| 1022 | SPV.0060 Special 5007. Hydrant Assembly Relocation | 1.000 EACH | | . | | . |
| 1023 | SPV.0060 Special 5008. Relocate Hydrant | 2.000 EACH | | . | | . |
| 1024 | SPV.0060 Special 5101. MMSD Sanitary Manhole Precast | 2.000 EACH | | . | | . |
| 1025 | SPV.0060 Special 5102. MMSD Sanitary Manhole Reconstruct | 2.000 EACH | | . | | . |
| 1026 | SPV.0060 Special 5103. MMSD Sanitary Manhole Extension | 1.000 EACH | | . | | . |
| 1027 | SPV.0060 Special 5104. MMSD Manhole Rehabilitation With Pure Fused Calcium Aluminate Coatings | 1.000 EACH | | . | | . |
| 1028 | SPV.0060 Special 5105. Removing MMSD Sanitary Manhole | 1.000 EACH | | . | | . |
| 1029 | SPV.0060 Special 5106. Abandoning MMSD Sanitary Manhole With Concrete Cap | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1030 | SPV.0060 Special 5200. Adjusting Sanitary Manhole | 11.000 EACH | | . | | . |
| 1031 | SPV.0060 Special 5201. Reconstruct Sanitary Manhole | 4.000 EACH | | . | | . |
| 1032 | SPV.0060 Special 6000. Indigo, Wild #1 Cont | 3.000 EACH | | . | | . |
| 1033 | SPV.0060 Special 6001. Catmint, Walkers Low #1 Cont | 11.000 EACH | | . | | . |
| 1034 | SPV.0060 Special 6002. Coneflower, Magnus Purple #1 Cont | 23.000 EACH | | . | | . |
| 1035 | SPV.0060 Special 6003. Daylily, Romantic Returns #1 Cont | 29.000 EACH | | . | | . |
| 1036 | SPV.0060 Special 6004. Grass, Karl Forester #1 Cont | 10.000 EACH | | . | | . |
| 1037 | SPV.0060 Special 6005. Grass, Overdam Feather Reed #1 Cont | 7.000 EACH | | . | | . |
| 1038 | SPV.0060 Special 6006. Grass, Northwind Switch #1 Cont | 19.000 EACH | | . | | . |
| 1039 | SPV.0060 Special 6007. Grass, Prairie Dropseed #1 Cont | 17.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1040 | SPV.0060 Special 6008. Penstemon, Husker Red #1 Cont | 6.000 EACH | | . | | . |
| 1041 | SPV.0060 Special 6009. Sage, Caradonna Meadow #1 Cont | 22.000 EACH | | . | | . |
| 1042 | SPV.0060 Special 6010. Sage, Russian #1 Cont | 9.000 EACH | | . | | . |
| 1043 | SPV.0060 Special 6011. Sunflower, False #1 Cont | 12.000 EACH | | . | | . |
| 1044 | SPV.0060 Special 6012. Weed, Chocolate Joe - Pye #1 Cont | 6.000 EACH | | . | | . |
| 1045 | SPV.0060 Special 8002. Southwest Core Pond Outlet Storm Sewer Structure | 1.000 EACH | | . | | . |
| 1046 | SPV.0060 Special 8004. Inlet Covers Type 57 | 5.000 EACH | | . | | . |
| 1047 | SPV.0060 Special 8005. Cover Plates Left In Place | 5.000 EACH | | . | | . |
| 1048 | SPV.0060 Special 8007. Reconnect Storm Sewer Laterals | 10.000 EACH | | . | | . |
| 1049 | SPV.0060 Special 8012. Manholes 9-Ft Special | 4.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1050 | SPV.0060 Special 8013. Manholes 10-Ft Special | 3.000 EACH | | . | | . |
| 1051 | SPV.0060 Special 8015. Pipe Connection To Existing Structure | 30.000 EACH | | . | | . |
| 1052 | SPV.0060 Special 8018. Removing Bulkhead | 38.000 EACH | | . | | . |
| 1053 | SPV.0060 Special 8050. Inlet Covers Type 27-M Bolted | 135.000 EACH | | . | | . |
| 1054 | SPV.0060 Special 8052. Removing Welds from Sewer Access Covers | 10.000 EACH | | . | | . |
| 1055 | SPV.0060 Special 8062. Remove And Cap Existing Drainage Storm Sewer Structure | 18.000 EACH | | . | | . |
| 1056 | SPV.0060 Special 8065. Removing Cover Plates Left In Place | 55.000 EACH | | . | | . |
| 1057 | SPV.0060 Special 8080. Welding Sewer Access Covers | 20.000 EACH | | . | | . |
| 1058 | SPV.0060 Special 8099. Intermediate Jacking Stations | 4.000 EACH | | . | | . |
| 1059 | SPV.0060 Special 8502. Storm Sewer Structure Z4235 | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1060 | SPV.0060 Special 8503.<br>Storm Sewer Structure<br>Z4121 | 1.000<br>EACH | | . | | . |
| 1061 | SPV.0060 Special 8504.<br>Storm Sewer Structure<br>Z4192 | 1.000<br>EACH | | . | | . |
| 1062 | SPV.0060 Special 8505.<br>Storm Sewer Structure<br>Z4133 | 1.000<br>EACH | | . | | . |
| 1063 | SPV.0075 Special 0002.<br>Pavement Cleanup Project<br>1060-33-81 | 2,000.000<br>HRS | | . | | . |
| 1064 | SPV.0075 Special 0003.<br>Pavement Cleanup Project<br>1060-34-82 | 100.000<br>HRS | | . | | . |
| 1065 | SPV.0075 Special 0010.<br>Obstructions Trenchless<br>Utility Construction | 24.000<br>HRS | | . | | . |
| 1066 | SPV.0075 Special 4200.<br>Obstructions Drilled<br>Foundation Shaft | 48.000<br>HRS | | . | | . |
| 1067 | SPV.0075 Special 4205.<br>Obstructions Wall Secant<br>Pile | 10.000<br>HRS | | . | | . |
| 1068 | SPV.0075 Special 4210.<br>Obstructions Foundation<br>Drilling | 33.000<br>HRS | | . | | . |
| 1069 | SPV.0075 Special 4215.<br>Obstructions Sign<br>Supports Concrete<br>Masonry | 65.000<br>HRS | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1070 | SPV.0075 Special 8097. Obstructions Tunnel Excavation | 66.000 HRS | | . | | . |
| 1071 | SPV.0085 Special 0900. Ice HPC Hot Weather Concreting | 3,125,041 LB | 0.75000 | | 2343780.75 | |
| 1072 | SPV.0085 Special 4310. Post-Tensioning Integral Pier Cap | 12,120.000 LB | | . | | . |
| 1073 | SPV.0090 Special 0010. Removing Pavement Markings Water Blasting | 342,715.000 LF | | . | | . |
| 1074 | SPV.0090 Special 0011. Removing Concrete Barrier Precast | 4,786.000 LF | | . | | . |
| 1075 | SPV.0090 Special 0014. Removing Reinforced Concrete Pipe | 298.000 LF | | . | | . |
| 1076 | SPV.0090 Special 0015. Removing Steel Pipe | 765.000 LF | | . | | . |
| 1077 | SPV.0090 Special 0016. Removing Miscellaneous Pipe | 167.000 LF | | . | | . |
| 1078 | SPV.0090 Special 0029. Fence Screening | 364.000 LF | | . | | . |
| 1079 | SPV.0090 Special 0100. Concrete Barrier Type S42C With 48-Inch Pan **P** | 461.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1080 | SPV.0090 Special 0101. Concrete Barrier Type S56 Special **P** | 146.000 LF | | . | | . |
| 1081 | SPV.0090 Special 0102. Concrete Barrier Type S56A Special **P** | 1,021.000 LF | | . | | . |
| 1082 | SPV.0090 Special 0103. Concrete Barrier Type S42 With 24-Inch Pan **P** | 5,518.000 LF | | . | | . |
| 1083 | SPV.0090 Special 0104. Concrete Barrier Vertical Back Type S42 Modified With 24-Inch Pan **P** | 365.000 LF | | . | | . |
| 1084 | SPV.0090 Special 0105. Concrete Barrier Vertical Back Type S56 Modified With 24-Inch Pan **P** | 64.000 LF | | . | | . |
| 1085 | SPV.0090 Special 0106. Concrete Barrier Vertical Back Type S56 Modified **P** | 210.000 LF | | . | | . |
| 1086 | SPV.0090 Special 0108. Concrete Barrier Type S32C **P** | 134.000 LF | | . | | . |
| 1087 | SPV.0090 Special 0110. Concrete Barrier Type S32 With 24-Inch Pan **P** | 190.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1088 | SPV.0090 Special 0112. Concrete Barrier Type S42 With 48-Inch Pan **P** | 695.000 LF | | . | | . |
| 1089 | SPV.0090 Special 0124. Maintain And Remove Concrete Barrier Temporary Precast | 54,736.000 LF | | . | | . |
| 1090 | SPV.0090 Special 0126. Pipe Underdrain 6-Inch Special | 91,278.000 LF | | . | | . |
| 1091 | SPV.0090 Special 0152. Concrete Curb & Gutter 4-Inch Sloped 60-Inch Type A **P** | 2,554.000 LF | | . | | . |
| 1092 | SPV.0090 Special 0153. Concrete Gutter 42-Inch **P** | 710.000 LF | | . | | . |
| 1093 | SPV.0090 Special 0154. Concrete Gutter 48-Inch **P** | 2,277.000 LF | | . | | . |
| 1094 | SPV.0090 Special 0155. Concrete Gutter 66-Inch **P** | 420.000 LF | | . | | . |
| 1095 | SPV.0090 Special 0300. Pavement Marking Grooved Preformed Thermoplastic Stop Line, 18-Inch | 241.000 LF | | . | | . |
| 1096 | SPV.0090 Special 0301. Pavement Marking Grooved Preformed Thermoplastic Stop Line, 24-Inch | 266.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1097 | SPV.0090 Special 0302. Pavement Marking Grooved Preformed Thermoplastic Crosswalk, 6-Inch | 1,823.000 LF | | . | | . |
| 1098 | SPV.0090 Special 0320. Install Temporary Pavement Marking Reflective Orange Paint 4-Inch | 286,275.000 LF | | . | | . |
| 1099 | SPV.0090 Special 0322. Install Temporary Pavement Marking Reflective Orange Paint 8-Inch | 16,385.000 LF | | . | | . |
| 1100 | SPV.0090 Special 0324. Install Temporary Pavement Marking Reflective Orange Paint 24-Inch | 505.000 LF | | . | | . |
| 1101 | SPV.0090 Special 0326. Install Temporary Pavement Marking Orange Epoxy 4-Inch | 191,630.000 LF | | . | | . |
| 1102 | SPV.0090 Special 0328. Install Temporary Pavement Marking Orange Epoxy 8-Inch | 9,645.000 LF | | . | | . |
| 1103 | SPV.0090 Special 0400. Glare Screens Temporary | 26,850.000 LF | | . | | . |
| 1104 | SPV.0090 Special 0410. Concrete Barrier Temporary Precast Anchoring | 4,925.000 LF | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1105 | SPV.0090 Special 0412. Concrete Barrier Temporary Precast Anchored On Bridge | 775.000 LF | | . | | . |
| 1106 | SPV.0090 Special 0414. Concrete Barrier Temporary Precast Anchored On Asphaltic Bridge Overlay | 363.000 LF | | . | | . |
| 1107 | SPV.0090 Special 0600. Fence Temporary 6-Ft | 417.000 LF | | . | | . |
| 1108 | SPV.0090 Special 0605. Fence Decorative Hast Ground Mounted | 1,307.000 LF | | . | | . |
| 1109 | SPV.0090 Special 0610. Fence Chain Link Vinyl Coated 6-Ft | 426.000 LF | | . | | . |
| 1110 | SPV.0090 Special 0901. Minor Retaining Wall R-2 | 177.000 LF | | . | | . |
| 1111 | SPV.0090 Special 1005. Cable Aerial Aluminum 6 AWG Quadruplex | 13,459.000 LF | | . | | . |
| 1112 | SPV.0090 Special 1006. Cable Aerial Aluminum 4 AWG Quadruplex | 9,366.000 LF | | . | | . |
| 1113 | SPV.0090 Special 1007. Cable Aerial Aluminum 2 AWG Quadruplex | 4,850.000 LF | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1114 | SPV.0090 Special 1008. Cable Aerial Aluminum 1/0 AWG Quadruplex | 3,788.000 LF | | . | | . |
| 1115 | SPV.0090 Special 1026. Cable In Duct 5-6 AWG | 26,403.000 LF | | . | | . |
| 1116 | SPV.0090 Special 1027. Conduit Reinforced Thermosetting Resin 3/4-Inch | 460.000 LF | | . | | . |
| 1117 | SPV.0090 Special 1053. Liquidtight Flexible Metallic Conduit 3/4-Inch | 2,718.000 LF | | . | | . |
| 1118 | SPV.0090 Special 1054. Wireway Fiberglass 4-Inch X 4-Inch | 427.000 LF | | . | | . |
| 1119 | SPV.0090 Special 1055. Wireway Fiberglass 2. 5-Inch X 2.5-Inch | 427.000 LF | | . | | . |
| 1120 | SPV.0090 Special 2001. Install Piezoelectric Axle Sensor Slots | 90.000 LF | | . | | . |
| 1121 | SPV.0090 Special 2002. Loop Detector Lead In Cable Special | 2,260.000 LF | | . | | . |
| 1122 | SPV.0090 Special 4400. Fence Decorative Bridge | 471.000 LF | | . | | . |
| 1123 | SPV.0090 Special 4410. Fence Decorative Wall | 530.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1124 | SPV.0090 Special 4411. Fence Decorative Hast Wall Mounted | 232.000 LF | | . | | . |
| 1125 | SPV.0090 Special 4415. Piling Sleeves | 2,407.000 LF | | . | | . |
| 1126 | SPV.0090 Special 4420. Foundation Drilling Special | 5,495.000 LF | | . | | . |
| 1127 | SPV.0090 Special 4425. Wall Secant Pile 47. 24-Inch | 1,680.000 LF | | . | | . |
| 1128 | SPV.0090 Special 4430. Drilled Foundation Shaft 59.06-Inch | 915.000 LF | | . | | . |
| 1129 | SPV.0090 Special 4450. Removing Temporary Shoring Left In Place | 814.000 LF | | . | | . |
| 1130 | SPV.0090 Special 4455. Fence Chain Link Vinyl Coated 2.75-Ft | 31.000 LF | | . | | . |
| 1131 | SPV.0090 Special 4460. Piling CIP Concrete 16 X 0.5-Inch Special B-40-869 | 1,705.000 LF | | . | | . |
| 1132 | SPV.0090 Special 4465. Piling CIP Concrete 16 X 0.5-Inch Special B-40-870 | 2,400.000 LF | | . | | . |
| 1133 | SPV.0090 Special 4470. Piling Steel HP 14-Inch X 73 Lb Special B-40-882 | 1,300.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1134 | SPV.0090 Special 4475. Piling Steel HP 14-Inch X 73 Lb Special B-40-883 | 1,200.000 LF | | . | | . |
| 1135 | SPV.0090 Special 5000. Ductile Iron (Di) Awwa C-151 Cl. 55 Water Main 24-Inch | 403.000 LF | | . | | . |
| 1136 | SPV.0090 Special 5001. Steel Casing W/ Pvc 12-Inch Carrier | 175.000 LF | | . | | . |
| 1137 | SPV.0090 Special 5002. Water Main 12-Inch Ductile Iron Excavated Backfill | 134.000 LF | | . | | . |
| 1138 | SPV.0090 Special 5003. Water Main 12-Inch Pvc Excavated Backfill | 93.000 LF | | . | | . |
| 1139 | SPV.0090 Special 5004. Remove Water Main | 136.000 LF | | . | | . |
| 1140 | SPV.0090 Special 5005. Steel Casing 30-Inch | 79.000 LF | | . | | . |
| 1141 | SPV.0090 Special 5006. Water Main 16-Inch PVC Excavated Backfill | 40.000 LF | | . | | . |
| 1142 | SPV.0090 Special 5007. Water Main 16-Inch PVC Carrier | 215.000 LF | | . | | . |
| 1143 | SPV.0090 Special 5101. Abandoning Sanitary Sewer 15-Inch | 115.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| | SPV.0090 Special 5102. | | | | | |
| 1144 | Abandoning Sanitary Sewer 16-Inch | 7.000 LF | | . | | . |
| | SPV.0090 Special 5103. | | | | | |
| 1145 | MMSD Sanitary Sewer 16-Inch PVC C905 DR18 | 17.000 LF | | . | | . |
| | SPV.0090 Special 5104. | | | | | |
| 1146 | Steel Casing W/ 15-Inch Sanitary Sewer Carrier | 247.000 LF | | . | | . |
| | SPV.0090 Special 8025. | | | | | |
| 1147 | Pipe Underdrain Exploration | 100.000 LF | | . | | . |
| | SPV.0090 Special 8026. | | | | | |
| 1148 | Storm Sewer Lateral Exploration | 100.000 LF | | . | | . |
| | SPV.0090 Special 8030. | | | | | |
| 1149 | Drain Slotted Vane Longitudinal | 2,010.000 LF | | . | | . |
| | SPV.0090 Special 8035. | | | | | |
| 1150 | Drain Slotted Vane Longitudinal Temporary | 535.000 LF | | . | | . |
| | SPV.0090 Special 8090. | | | | | |
| 1151 | Lining 96-Inch Reinforced Concrete Storm Sewer Pipe | 1,198.000 LF | | . | | . |
| | SPV.0090 Special 8096. | | | | | |
| 1152 | Storm Sewer Construction | 2,531.000 LF | | . | | . |
| | SPV.0105 Special 0001. | | | | | |
| 1153 | Survey Project 1060-33-81 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1154 | SPV.0105 Special 0002. Survey Project 1060-43-81 | LUMP | LUMP | | | . |
| 1155 | SPV.0105 Special 0003. Concrete Pavement Joint Layout | LUMP | LUMP | | | . |
| 1156 | SPV.0105 Special 0007. Survey Project 1060-34-82 | LUMP | LUMP | | | . |
| 1157 | SPV.0105 Special 0010. Removing Adler Utility Tunnel | LUMP | LUMP | | | . |
| 1158 | SPV.0105 Special 0400. Moving Sign Bridge Cantilevered S-40-128 | LUMP | LUMP | | | . |
| 1159 | SPV.0105 Special 1006. Maintenance of Lighting Systems | LUMP | LUMP | | | . |
| 1160 | SPV.0105 Special 1007. Lighting System Integrator | LUMP | LUMP | | | . |
| 1161 | SPV.0105 Special 3001. Transp And Inst S-F Adaptive Traf Sig Equip W. Wisconsin Ave & N. 95Th St | LUMP | LUMP | | | . |
| 1162 | SPV.0105 Special 3002. Install Fiber Optic Comm In Cabinet W. Wisconsin Ave & N. 95Th St | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1163 | SPV.0105 Special 3101. Transp Signal And Lighting Materials W. Wisconsin Ave & N. 95Th St | LUMP | LUMP | | | . |
| 1164 | SPV.0105 Special 4525. Trial Secant Wall Panel 47.24-Inch | LUMP | LUMP | | | . |
| 1165 | SPV.0105 Special 4530. Expansion Device Modular LRFD B-40-786 | LUMP | LUMP | | | . |
| 1166 | SPV.0105 Special 4535. Expansion Device Modular LRFD B-40-787 | LUMP | LUMP | | | . |
| 1167 | SPV.0105 Special 4540. Expansion Device Modular LRFD B-40-853 | LUMP | LUMP | | | . |
| 1168 | SPV.0105 Special 4545. Expansion Device Modular LRFD B-40-854 | LUMP | LUMP | | | . |
| 1169 | SPV.0105 Special 4550. Expansion Device Modular LRFD B-40-856 | LUMP | LUMP | | | . |
| 1170 | SPV.0105 Special 4560. Vibration Control And Monitoring 96-Inch Storm Sewer | LUMP | LUMP | | | . |
| 1171 | SPV.0105 Special 4565. Galvanized Steel Grating | LUMP | LUMP | | | . |
| 1172 | SPV.0105 Special 4570. Metalizing B-40-787 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1173 | SPV.0105 Special 5000. State-Furnished Water Booster Station | LUMP | LUMP | | | . |
| 1174 | SPV.0105 Special 5001. Abandon Temporary Connection And Existing Water Main | LUMP | LUMP | | | . |
| 1175 | SPV.0105 Special 6002. Chevron Solar Powered Sign System Assembly Ramp SW | LUMP | LUMP | | | . |
| 1176 | SPV.0105 Special 6004. Chevron Solar Powered Sign System Assembly Ramp NE | LUMP | LUMP | | | . |
| 1177 | SPV.0105 Special 6006. Chevron Solar Powered Sign System Assembly Ramp NW | LUMP | LUMP | | | . |
| 1178 | SPV.0105 Special 6008. Chevron Solar Powered Sign System Assembly WN | LUMP | LUMP | | | . |
| 1179 | SPV.0105 Special 6010. Chevron Solar Powered Sign System Assembly SE | LUMP | LUMP | | | . |
| 1180 | SPV.0105 Special 6012. Chevron Solar Powered Sign System Assembly WS | LUMP | LUMP | | | . |
| 1181 | SPV.0105 Special 8098. Control Of Water | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1182 | SPV.0105 Special 8099. Geotechnical Instrumentation | LUMP | LUMP | | | . |
| 1183 | SPV.0110 Special 4600. Timber Lagging **P** | 63.000 MBM | | . | | . |
| 1184 | SPV.0135 Special 0001. Vibration Monitoring | 455.000 MON | | . | | . |
| 1185 | SPV.0165 Special 4700. Longitudinal Grooving Bridge Deck **P** | 612,753.000 SF | | . | | . |
| 1186 | SPV.0165 Special 4710. Wall Concrete Panel Mechanically Stabilized Earth LRFD/QMP **P** | 213,181.000 SF | | . | | . |
| 1187 | SPV.0165 Special 4715. Mechanically Stabilized Earth Backfill Abutment | 10,379.000 SF | | . | | . |
| 1188 | SPV.0165 Special 4720. Wall Concrete Panel Mechanically Stabilized Earth LRFD/LFCF **P** | 14,816.000 SF | | . | | . |
| 1189 | SPV.0165 Special 4730. Wall Wire Faced Mechanically Stabilized Earth LRFD/QMP **P** | 6,853.000 SF | | . | | . |
| 1190 | SPV.0165 Special 4740. Wall Modular Block Mechanically Stabilized Earth LRFD **P** | 3,505.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1191 | SPV.0165 Special 4750. Wall Concrete Panel With Traffic Barrier Mse LRFD/QMP **P** | 28,809.000 SF | | . | | . |
| 1192 | SPV.0165 Special 4760. Wall Concrete Panel With Traffic Barrier Mse LRFD/LFCF **P** | 3,581.000 SF | | . | | . |
| 1193 | SPV.0165 Special 4770. Temp Wall Wire Faced Mechanically Stabilized Earth LRFD/QMP **P** | 11,937.000 SF | | . | | . |
| 1194 | SPV.0165 Special 4775. Temporary Shoring Railroad | 3,810.000 SF | | . | | . |
| 1195 | SPV.0165 Special 4780. Geocomposite Drain Board | 29,070.000 SF | | . | | . |
| 1196 | SPV.0165 Special 4785. Concrete Staining Previously Constructed Structure | 622,565.000 SF | | . | | . |
| 1197 | SPV.0165 Special 4786. Concrete Staining Multi-Color Previously Constructed Structure | 12,635.000 SF | | . | | . |
| 1198 | SPV.0165 Special 4790. Prestressed Precast Concrete Wall Panel **P** | 14,147.000 SF | | . | | . |
| 1199 | SPV.0165 Special 4795. Structure Waterproofing Special | 26,335.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1200 | SPV.0165 Special 8095. Shaft Excavation Support System | 9,290.000 SF | | . | | . |
| 1201 | SPV.0180 Special 0101. Joint Sealing | 4,197.000 SY | | . | | . |
| 1202 | SPV.0180 Special 0102. Concrete Pavement Repair Special | 92.000 SY | | . | | . |
| 1203 | SPV.0180 Special 0105. Concrete Pavement 12-Inch Special **P** | 420,657.000 SY | | . | | . |
| 1204 | SPV.0180 Special 0106. Asphaltic Material Binder | 24,763.000 SY | | . | | . |
| 1205 | SPV.0180 Special 0200. Topsoil Special | 372,415.000 SY | | . | | . |
| 1206 | SPV.0180 Special 0800. Geogrid Reinforcement | 15,000.000 SY | | . | | . |
| 1207 | SPV.0180 Special 0801. Soil Drying | 1,012,100 SY | | . | | . |
| 1208 | SPV.0180 Special 4800. Slope Paving Crushed Aggregate Special | 30,079.000 SY | | . | | . |
| 1209 | SPV.0195 Special 0100. Cold Patch | 50.000 TON | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1210 | SPV.0195 Special 0120. HMA Longitudinal Joint Repair | 40.000 TON | | . | | . |
| 1211 | SPV.0195 Special 0700. Management Of Solid Waste | 3,097.000 TON | | . | | . |
| 1212 | SPV.0195 Special 0801. Soil Drying Agent | 20,300.000 TON | | . | | . |
| 1334 | 630.0171 Seeding Mixture No. 70A | 439.000 LB | | . | | . |
| | SECTION 0001 TOTAL | | | | | . |

SECTION 0002 B-40-786 (Option A)
ALT GROUP AA1

| | | | | | | |
|---|---|---|---|---|---|---|
| 1213 | 206.1000 Excavation for Structures Bridges (structure) 0001. B-40-786 | LUMP | LUMP | | | . |
| 1214 | 209.0100 Backfill Granular | 24.000 CY | | . | | . |
| 1215 | 502.0100 Concrete Masonry Bridges **P** | 812.000 CY | | . | | . |
| 1216 | 505.0405 Bar Steel Reinforcement HS Bridges | 260,690.000 LB | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1217 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 190,360.000 LB | | . | | . |
| 1218 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 7.000 EACH | | . | | . |
| 1219 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 7.000 EACH | | . | | . |
| 1220 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 28.000 HRS | | . | | . |
| 1221 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 523.000 LF | | . | | . |
| | SECTION 0002 TOTAL | | | | | . |

SECTION 0003 B-40-786 (Option B)
ALT GROUP AA2

| | | | | | | |
|---|---|---|---|---|---|---|
| 1222 | 206.1000 Excavation for Structures Bridges (structure) 0001. B-40-786 | LUMP | LUMP | | | . |
| 1223 | 209.0100 Backfill Granular | 62.000 CY | | . | | . |
| 1224 | 502.0100 Concrete Masonry Bridges **P** | 1,211.000 CY | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1225 | 505.0405 Bar Steel Reinforcement HS Bridges | 213,150.000 LB | | . | | . |
| 1226 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 208,610.000 LB | | . | | . |
| 1227 | 511.1200 Temporary Shoring (structure) 0001. B-40-786 | 675.000 SF | | . | | . |
| 1228 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 5,580.000 LF | | . | | . |
| 1229 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 6.000 EACH | | . | | . |
| 1230 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 6.000 EACH | | . | | . |
| 1231 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 3.000 EACH | | . | | . |
| 1232 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 4.000 EACH | | . | | . |
| 1233 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 4.000 EACH | | . | | . |
| 1234 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 16.000 HRS | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1235 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 311.000 LF | . | | . | |
| | SECTION 0003 TOTAL | | | | . | |

SECTION 0004 B-40-853 (Option A)
ALT GROUP BB1

| | | | | | | |
|---|---|---|---|---|---|---|
| 1236 | 206.1000 Excavation for Structures Bridges (structure) 0009. B-40-853 | LUMP | LUMP | | | |
| 1237 | 209.0100 Backfill Granular | 40.000 CY | . | | . | |
| 1238 | 502.0100 Concrete Masonry Bridges **P** | 428.000 CY | . | | . | |
| 1239 | 505.0405 Bar Steel Reinforcement HS Bridges | 137,850.000 LB | . | | . | |
| 1240 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 100,380.000 LB | . | | . | |
| 1241 | 505.0911 Bar Couplers No. 11 | 96.000 EACH | . | | . | |
| 1242 | 511.1200 Temporary Shoring (structure) 0011. B-40-853 | 2,740.000 SF | . | | . | |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1243 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 5.000 EACH | | . | | . |
| 1244 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 5.000 EACH | | . | | . |
| 1245 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 20.000 HRS | | . | | . |
| 1246 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 298.000 LF | | . | | . |
| | SECTION 0004 TOTAL | | | | | . |

SECTION 0005 B-40-853 (Option B)
ALT GROUP BB2

| | | | | | | |
|---|---|---|---|---|---|---|
| 1247 | 206.1000 Excavation for Structures Bridges (structure) 0009. B-40-853 | LUMP | LUMP | | | . |
| 1248 | 209.0100 Backfill Granular | 40.000 CY | | . | | . |
| 1249 | 502.0100 Concrete Masonry Bridges **P** | 559.000 CY | | . | | . |
| 1250 | 505.0405 Bar Steel Reinforcement HS Bridges | 129,440.000 LB | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1251 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 102,550.000 LB | | . | | . |
| 1252 | 505.0911 Bar Couplers No. 11 | 96.000 EACH | | . | | . |
| 1253 | 511.1200 Temporary Shoring (structure) 0011. B-40-853 | 2,740.000 SF | | . | | . |
| 1254 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 1,650.000 LF | | . | | . |
| 1255 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 2.000 EACH | | . | | . |
| 1256 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 2.000 EACH | | . | | . |
| 1257 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 1.000 EACH | | . | | . |
| 1258 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 4.000 EACH | | . | | . |
| 1259 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 4.000 EACH | | . | | . |
| 1260 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 16.000 HRS | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1261 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 236.500 LF | | . | | . |
| | SECTION 0005 TOTAL | | | | | . |

SECTION 0006 B-40-854 (Option A)
ALT GROUP CC1

| | | | | | | |
|---|---|---|---|---|---|---|
| 1262 | 206.1000 Excavation for Structures Bridges (structure) 0010. B-40-854 | LUMP | LUMP | | | . |
| 1263 | 209.0100 Backfill Granular | 250.000 CY | | . | | . |
| 1264 | 502.0100 Concrete Masonry Bridges **P** | 2,771.000 CY | | . | | . |
| 1265 | 505.0405 Bar Steel Reinforcement HS Bridges | 435,860.000 LB | | . | | . |
| 1266 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 755,100.000 LB | | . | | . |
| 1267 | 505.0800.S Bar Steel Reinforcement HS Stainless Structures | 1,430.000 LB | | . | | . |
| 1268 | 505.0911 Bar Couplers No. 11 | 144.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1269 | 511.1200 Temporary Shoring (structure) 0012. B-40-854 | 3,240.000 SF | | . | | . |
| 1270 | 612.0106 Pipe Underdrain 6-Inch | 40.000 LF | | . | | . |
| 1271 | 612.0206 Pipe Underdrain Unperforated 6-Inch | 40.000 LF | | . | | . |
| 1272 | 645.0111 Geotextile Fabric Type DF Schedule A | 33.000 SY | | . | | . |
| 1273 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 14.000 EACH | | . | | . |
| 1274 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 5.000 EACH | | . | | . |
| 1275 | SPV.0060 Special 4162. Tip Testing Drilled Foundation Shaft 118. 11-Inch | 9.000 EACH | | . | | . |
| 1276 | SPV.0060 Special 4181. Bar Couplers No. 18 | 210.000 EACH | | . | | . |
| 1277 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 56.000 HRS | | . | | . |
| 1278 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 364.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1279 | SPV.0090 Special 4440. Drilled Foundation Shaft 118.11-Inch | 525.000 LF | | . | | . |
| 1280 | SPV.0105 Special 4520. Trial Drilled Foundation Shaft 118.11-Inch | LUMP | LUMP | | | . |
| | SECTION 0006 TOTAL | | | | | . |

SECTION 0007 B-40-854 (Option B)
ALT GROUP CC2

| | | | | | | |
|---|---|---|---|---|---|---|
| 1281 | 206.1000 Excavation for Structures Bridges (structure) 0010. B-40-854 | LUMP | LUMP | | | . |
| 1282 | 209.0100 Backfill Granular | 2,190.000 CY | | . | | . |
| 1283 | 502.0100 Concrete Masonry Bridges **P** | 3,938.000 CY | | . | | . |
| 1284 | 505.0405 Bar Steel Reinforcement HS Bridges | 377,110.000 LB | | . | | . |
| 1285 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 720,240.000 LB | | . | | . |
| 1286 | 505.0800.S Bar Steel Reinforcement HS Stainless Structures | 1,430.000 LB | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1287 | 505.0911 Bar Couplers No. 11 | 96.000 EACH | | . | | . |
| 1288 | 511.1200 Temporary Shoring (structure) 0012. B-40-854 | 3,240.000 SF | | . | | . |
| 1289 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 14,870.000 LF | | . | | . |
| 1290 | 612.0106 Pipe Underdrain 6-Inch | 40.000 LF | | . | | . |
| 1291 | 612.0206 Pipe Underdrain Unperforated 6-Inch | 40.000 LF | | . | | . |
| 1292 | 645.0111 Geotextile Fabric Type DF Schedule A | 33.000 SY | | . | | . |
| 1293 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 16.000 EACH | | . | | . |
| 1294 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 16.000 EACH | | . | | . |
| 1295 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 8.000 EACH | | . | | . |
| 1296 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 6.000 EACH | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1297 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98.43-Inch | 2.000 EACH | | . | | . |
| 1298 | SPV.0060 Special 4162. Tip Testing Drilled Foundation Shaft 118.11-Inch | 4.000 EACH | | . | | . |
| 1299 | SPV.0060 Special 4181. Bar Couplers No. 18 | 70.000 EACH | | . | | . |
| 1300 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 24.000 HRS | | . | | . |
| 1301 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 207.000 LF | | . | | . |
| 1302 | SPV.0090 Special 4440. Drilled Foundation Shaft 118.11-Inch | 227.000 LF | | . | | . |
| 1303 | SPV.0105 Special 4520. Trial Drilled Foundation Shaft 118.11-Inch | LUMP | LUMP | | | . |
| | SECTION 0007 TOTAL | | | | | . |

SECTION 0008 B-40-856 (Option A)
ALT GROUP DD1

| | | | | | | |
|---|---|---|---|---|---|---|
| 1304 | 206.1000 Excavation for Structures Bridges (structure) 0011. B-40-856 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1305 | 209.0100 Backfill Granular | 73.000 CY | | . | | . |
| 1306 | 502.0100 Concrete Masonry Bridges **P** | 2,828.000 CY | | . | | . |
| 1307 | 505.0405 Bar Steel Reinforcement HS Bridges | 325,210.000 LB | | . | | . |
| 1308 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 675,740.000 LB | | . | | . |
| 1309 | 511.1200 Temporary Shoring (structure) 0003. B-40-856 | 2,445.000 SF | | . | | . |
| 1310 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 12.000 EACH | | . | | . |
| 1311 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 2.000 EACH | | . | | . |
| 1312 | SPV.0060 Special 4162. Tip Testing Drilled Foundation Shaft 118. 11-Inch | 10.000 EACH | | . | | . |
| 1313 | SPV.0060 Special 4181. Bar Couplers No. 18 | 150.000 EACH | | . | | . |
| 1314 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 48.000 HRS | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1315 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 115.000 LF | | . | | . |
| 1316 | SPV.0090 Special 4440. Drilled Foundation Shaft 118.11-Inch | 598.000 LF | | . | | . |
| | SECTION 0008 TOTAL | | | | | . |

SECTION 0009 B-40-856 (Option B)
ALT GROUP DD2

| | | | | | | |
|---|---|---|---|---|---|---|
| 1317 | 206.1000 Excavation for Structures Bridges (structure) 0011. B-40-856 | LUMP | LUMP | | | . |
| 1318 | 209.0100 Backfill Granular | 133.000 CY | | . | | . |
| 1319 | 502.0100 Concrete Masonry Bridges **P** | 3,502.000 CY | | . | | . |
| 1320 | 505.0405 Bar Steel Reinforcement HS Bridges | 319,380.000 LB | | . | | . |
| 1321 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 649,700.000 LB | | . | | . |
| 1322 | 511.1200 Temporary Shoring (structure) 0003. B-40-856 | 2,445.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1323 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 7,980.000 LF | | . | | . |
| 1324 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 10.000 EACH | | . | | . |
| 1325 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 10.000 EACH | | . | | . |
| 1326 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 5.000 EACH | | . | | . |
| 1327 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 7.000 EACH | | . | | . |
| 1328 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 1.000 EACH | | . | | . |
| 1329 | SPV.0060 Special 4162. Tip Testing Drilled Foundation Shaft 118. 11-Inch | 6.000 EACH | | . | | . |
| 1330 | SPV.0060 Special 4181. Bar Couplers No. 18 | 90.000 EACH | | . | | . |
| 1331 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 28.000 HRS | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1332 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 65.000 LF | | . | | . |
| 1333 | SPV.0090 Special 4440. Drilled Foundation Shaft 118.11-Inch | 355.000 LF | | . | | . |
| | SECTION 0009 TOTAL | | | | | . |
| | TOTAL BID | | | | | . |

# Wisconsin Department of Transportation

**Division of Transportation Systems Development**
Bureau of Project Development
4802 Sheboygan Avenue, Rm 601
P O Box 7916
Madison, WI 53707-7916

Telephone: (608) 266-1631
Facsimile (FAX): (608) 266-8459

August 28, 2015

## NOTICE TO ALL CONTRACTORS:

**Proposal #01: 1060-33-81, WISC 2015 473**
**Zoo IC – Zoo Interchange Phase 2**
**Lincoln – Bluemound, 121st to 70th**
**USH 45**
**Milwaukee County**

**1060-34-82**
**Zoo IC – IH 894 NB Auxiliary Lane**
**Oklahoma Ave to National Ave**
**IH 894**
**Milwaukee County**

**1060-43-81, WISC 2015 474**
**East West Freeway**
**Underwood Cr Prkwy & 121st St Brdg**
**IH 94**
**Milwaukee County**

## Letting of September 29, 2015

This is Addendum No. 02, which provides for the following:

### Special Provisions

| **Revised** Special Provisions | |
|---|---|
| Article No. | Description |
| 4 | Prosecution and Progress |
| 123 | Luminaires Utility LED B, Item 659.1120; Luminaires Utility LED D, Item 659.1130 |
| 206 | Probeam Luminaire, Item SPV.0060.1127 |

| **Added** Special Provisions | |
|---|---|
| Article No. | Description |
| 405 | Partially Removing Existing Drilled Shafts |
| 406 | Crash Cushions Permanent Low Maintenance and Crash Cushions Temporary |

| **Deleted** Special Provisions | |
|---|---|
| Article No. | Description |
| 53 | Incentive/Disincentive for Interim Completion of Work Ramp NE, Item 108.3100.S.0003 |

**Schedule of Items**

| **Revised** Bid Item Quantities | | | | | |
|---|---|---|---|---|---|
| Bid Item | Item Description | Unit | Old Quantity | Revised Quantity | Proposal Total |
| 506.3015 | Welded Stud Shear Connectors 7/8x6-Inch | EACH | 17200 | 0 | 57888 |
| 506.3020 | Welded Stud Shear Connectors 7/8x7-Inch | EACH | 0 | 17200 | 20650 |
| 511.1200.0018 | Temporary Shoring B-40-874 | SF | 1900 | 3800 | 3800 |
| 550.2168 | Piling CIP Concrete 16 X 0.50-Inch | LF | 1395 | 0 | 15525 |
| SPV.0060.4115 | Pile Dynamic Analyzer (PDA) Restrikes | EACH | 4 | 6 | 97 |
| SPV.0060.4116 | Case Pile Wave Analysis Program (CAP/WAP) Evaluation | EACH | 2 | 3 | 55 |

| **Added** Bid Item Quantities | | | | | |
|---|---|---|---|---|---|
| Bid Item | Item Description | Unit | Old Quantity | Revised Quantity | Proposal Total |
| 550.2148 | Piling CIP Concrete 14 X 0.50-Inch | LF | 0 | 1395 | 1395 |
| SPV.0105.0050 | Partially Removing Existing Drilled Shafts | LS | 0 | 1 | 1 |

| **Deleted** Bid Item Quantities | | | | | |
|---|---|---|---|---|---|
| Bid Item | Item Description | Unit | Old Quantity | Revised Quantity | Proposal Total |
| 108.3100.S.0003 | Incentive/Disincentive for Interim Completion of Work Ramp NE | CD | 0.1 | 0 | 0 |

**Plan Sheets**

| **Revised** Plan Sheets | |
|---|---|
| Plan Sheet | Plan Sheet Title (brief description of changes to sheet) |
| 206 | Ramp SA revised to show some work done in previous contract |
| 398 | Removal sheet revised to show Partially Removing Existing Drilled Shaft location |
| 957 | Sign 262R revised |
| 1621 | Quantity sheet revised to show Partially Removing Existing Drilled Shaft location |
| 1664 | Sheet was copied over in Addendum #1 (Sheet 1663 was shown twice) |
| 1924 | Sign 262R revised |
| 2353 | Sign 262R revised |
| 2862 | Restrike revisions |
| 2868 | Restrike revisions |
| 3850 | Temporary Shoring revisions |
| 3852 | Temporary Shoring revisions |

The responsibility for notifying potential subcontractors and suppliers of these changes remains with the prime contractor.

Sincerely,

*Mike Coleman*

Proposal Development Specialist
Proposal Management Section

**ADDENDUM NO. 02**

**1060-33-81**

**August 28, 2015**

**Special Provisions**

**4. Prosecution and Progress**

*Replace the section titled* **Long Term Closure Restrictions** *with the following:*

**Long Term Closure Restrictions**
The existing US 45 southbound to IH 94 eastbound system ramp, ramp NE, may be closed as shown in the plans in Stage 3A for a onetime only period not to exceed 240 consecutive calendar days to facilitate construction of that ramp. Do not close this ramp prior to July 11, 2016 and open this ramp to traffic by June 27, 2017, or as approved by the engineer. Lane rental assessments will not apply to this 240 calendar day closure.

Do not close long term the existing Ramp WN prior to August 19, 2016, or as approved by the engineer.

*Replace the section titled* **Interim and Final Completion of Work** *with the following:*

**Interim and Final Completion of Work**

*Supplement standard spec 108.10 with the following:*

The department will not grant time extensions for the following:

- Severe weather as specified in standard spec 108.10.2.2.
- Labor disputes that are not industry wide.
- Delays in material deliveries.

Each day is defined as a 24 hour period beginning at 12:01 AM.
SEF Rev. 14_1211

Complete the retaining wall work for Minor Retaining Wall R-2 along the berm south of Greenfield Avenue prior to May 27, 2016.

Complete the landscaping work, including but limited to, tree planting, seeding and mulch, and sodding along the berm south of Greenfield Avenue prior to May 27, 2016.

Complete the landscaping work, including but limited to, tree planting, seeding and mulch, and sodding along Adler Street, Chester Street and O'Connell Street prior to May 27, 2016.

**Interim Completion of Work National Avenue Exit Ramp**
If the contractor fails to complete all work as shown in Stage 1B of Project ID # 1060-34-82 and coordination measures necessary on the northbound IH 894/USH 45 exit ramp to National Avenue to restore traffic on the ramp within 28 calendar days of the closure date, the department will assess the contractor $10,000 in interim liquidated damages for each calendar day that the ramp remains closed after 12:01 AM, on the 29th calendar day after the closure begins. An entire calendar day will be charged for any period of time within a calendar day that the ramp remains closed beyond 12:01 AM, on the 29th day, the exit ramp is not open.

**Interim Completion of Work Oklahoma Avenue Entrance Ramp**

If the contractor fails to complete all work as shown in Stage 1B of Project ID # 1060-34-82 and coordination measures necessary on the Oklahoma Avenue entrance ramp to northbound IH 894/USH 45 to restore traffic on the ramp within 28 calendar days of the closure date, the department will assess the contractor $10,000 in interim liquidated damages for each calendar day that the ramp remains closed after 12:01 AM, on the 29th calendar day after the closure begins. An entire calendar day will be charged for any period of time within a calendar day that the ramp remains closed beyond 12:01 AM, on the 29th day, the entrance ramp is not open.

**Interim Completion of Work 04/15/2016**
If the contractor fails to complete all of the work necessary to open the IH 894 auxiliary lane as shown in project ID 1060-34-82, Stage 2 of the traffic control plans including:

- All work shown in stage 1B
- IH 894 pavement, pavement marking, barrier wall, signage

prior to 12:01 AM on April 16, 2016, the department will assess the contractor $1,810 in interim liquidated damages per day for each calendar day after 12:01 AM on April 16, 2016. An entire calendar day will be charged for any period of time within a calendar day that the road remains closed beyond 12:01 AM on April 16, 2016.

**Interim Completion of Work 05/26/2016**
If the contractor fails to complete all of the work necessary to complete the sign structures and restoration as shown in project ID 1060-34-82, Stage 2 of the traffic control plans prior to 12:01 AM on May 27, 2016, the department will assess the contractor $1,810 in interim liquidated damages per day for each calendar day after 12:01 AM on May 27, 2016. An entire calendar day will be charged for any period of time within a calendar day that the road remains closed beyond 12:01 AM on May 27, 2016.

**Interim Completion of Work Wisconsin Avenue, 93rd Street to 95th Street**
If the contractor fails to complete all concrete paving, pavement marking, sidewalk and restoration work on Wisconsin Avenue between 93rd Street and 95th Street, as shown in Stage 4 to restore traffic on Wisconsin Avenue between 93rd Street and 95th Street within 42 calendar days of the closure date, the department will assess the contractor $5,000 in interim liquidated damages for each calendar day that the roadway remains closed after 12:01 AM, on the 43rd calendar day after the closure begins. An entire calendar day will be charged for any period of time within a calendar day that the roadway remains closed beyond 12:01 AM, on the 43rd day, the roadway is not open.

**Interim Completion of Work Wisconsin Avenue, 99th Street to 97th Street**
If the contractor fails to complete all concrete paving, pavement marking, signing, sidewalk and restoration work on Wisconsin Avenue between 99th Street and 97th Street and on 97th Street, as shown in Stages 2 and 3 of the plans, within 60 calendar days, the department will assess the contractor $1,810 in interim liquidated damages for each calendar day that the roadway is not complete after 12:01 AM, on the 61st calendar day. An entire calendar day will be charged for any period of time within a calendar day that the roadway is not complete beyond 12:01 AM, on the 61st day.

**Interim Completion of Work 10/31/2016**
If the contractor fails to complete all of the work necessary to open IH 894/USH 45 to 3 traffic lanes in each direction as shown in Stage 4 of the traffic control plans including:

- All work shown in stages 1, 2, and 3;
- IH 894/USH 45 northbound pavement, pavement marking, barrier wall, signage and lighting;
- Bridge B-40-883;
- Retaining walls R-40-532, R-40-534 and R-40-467;
- Noise walls N-40-66 and N-40-79;

- The northbound IH 894/USH 45 exit to Greenfield Avenue including pavement, pavement marking, barrier wall, signage and lighting;
- The Greenfield Avenue entrance ramp to northbound IH 894/USH 45 including pavement, pavement marking, barrier wall, signage and lighting.

prior to 12:01 AM on November 1, 2016, the department will assess the contractor $50,000 in interim liquidated damages per day for each calendar day after 12:01 AM on November 1, 2016. An entire calendar day will be charged for any period of time within a calendar day that the road remains restricted to two lanes beyond 12:01 AM on November 1, 2016.

**Interim Completion of Work 11/22/2016**
If the contractor fails to complete all of the work necessary to open IH 94 to 3 traffic lanes in each direction as shown in Stage 5 of the traffic control plans including:

- All work shown in stages 1, 2, 3 and 4
- IH 94 eastbound pavement, pavement marking, barrier wall, signage and lighting;
- Bridges B-40-870, B-40-872 and B-40-874
- Retaining walls R-40-540
- The eastbound IH 94 exit to STH 100 including pavement, pavement marking, barrier wall, signage and lighting;
- The STH 100 entrance ramp to eastbound IH 94 including pavement, pavement marking, barrier wall, signage and lighting;

prior to 12:01 AM on November 23, 2016, the department will assess the contractor $50,000 in interim liquidated damages per day for each calendar day after 12:01 AM on November 23, 2016. An entire calendar day will be charged for any period of time within a calendar day that the road remains restricted to two lanes beyond 12:01 AM on November 23, 2016.

**Interim Completion of Work 12/22/2016**
If the contractor fails to complete all concrete paving as shown in Stage 4 and coordination measures necessary on the Bluemound Road entrance ramp to northbound USH 45 to restore traffic on the ramp prior to 12:01 AM on December 23, 2016, the department will assess the contractor $10,000 in interim liquidated damages per day for each calendar day after 12:01 AM on December 23, 2016, that the Bluemound Road entrance ramp to northbound USH 45 is not open to vehicular traffic. An entire calendar day will be charged for any period of time within a calendar day that the ramp remains closed beyond 12:01 AM, on December 23, 2016.

**Interim Completion of Work 5/25/2017**
If the contractor fails to complete all of the work necessary to open Wisconsin Avenue to all traffic lanes in each direction including:

- Wisconsin Avenue Bridge, B-40-876 and retaining walls and approach pavements;
- Wisconsin Avenue pavement, pavement marking, sidewalks, signage and lighting;
- 97th Street pavement, pavement marking sidewalks and signing;
- Noise Wall N-40-62;
- The 95th Street traffic signal and all associated detection, signage, pedestrian heads, conduit, and lighting;
- The Wisconsin/94th Street intersection including all approaches, pavement marking, sidewalks, lighting, and signage;
- The Wisconsin/95th Street intersection including all approaches, pavement marking, sidewalks, lighting, and signage;
- The Wisconsin/97th Street intersection including all approaches, pavement marking, sidewalks, lighting, and signage;
- The Wisconsin/98th Street intersection including all approaches, pavement marking, sidewalks, lighting, and signage;

- Wisconsin Avenue work at and east of 94th Street including pavement marking sidewalks, lighting and signage;
- Wisconsin Avenue work at and west of 98th Street including pavement marking sidewalks, lighting and signage.

Prior to 12:01 AM on May 26, 2017, the department will assess the contractor $15,000 in interim liquidated damages per day for each calendar day after 12:01 AM on May 26, 2017. An entire calendar day will be charged for any period of time within a calendar day that the road remains closed beyond 12:01 AM on May 26, 2017.

**Interim Completion of Work northbound USH 45 Lane Reduction**
If the contractor fails to complete all work and coordination measures necessary on northbound USH 45 to restore traffic to 3 lanes within 14 calendar days of the closure date, the department will assess the contractor $50,000 in interim liquidated damages for each calendar day that the ramp remains closed after 12:01 AM, on the 15th calendar day after the closure begins. An entire calendar day will be charged for any period of time within a calendar day that the ramp remains closed beyond 12:01 AM, on the 15th day, the roadway is not open to three lanes.

**Interim Completion of Work Greenfield Avenue Exit Ramp**
If the contractor fails to complete all concrete paving as shown in Stage 2 and coordination measures necessary on the northbound IH 894/USH 45 exit ramp to Greenfield Avenue to restore traffic on the ramp within 21 calendar days of the closure date, the department will assess the contractor $10,000 in interim liquidated damages for each calendar day that the ramp remains closed after 12:01 AM, on the 22nd calendar day after the closure begins. An entire calendar day will be charged for any period of time within a calendar day that the ramp remains closed beyond 12:01 AM, on the 22nd day, the exit ramp is not open.

**Interim Completion of Work STH 100 Exit Ramp**
If the contractor fails to complete all concrete paving as shown in Stage 2 and coordination measures necessary on the eastbound IH 94 exit ramp to STH 100 to restore traffic on the ramp within 21 calendar days of the closure date, the department will assess the contractor $10,000 in interim liquidated damages for each calendar day that the ramp remains closed after 12:01 AM, on the 22nd calendar day after the closure begins. An entire calendar day will be charged for any period of time within a calendar day that the ramp remains closed beyond 12:01 AM, on the 22nd day, the exit ramp is not open.

**Interim Completion of Work 05/25/2017**
If the contractor fails to complete all of the work necessary to open Structure B-40-856 and the pavement for the system ramp W-N that carries traffic from eastbound IH 94 to northbound USH 45 prior to 12:01 AM on May 26, 2017, the department will assess the contractor $30,000 in interim liquidated damages per day for each calendar day after 12:01 AM on May 26, 2017, that the W-N Ramp is not open to vehicular traffic. An entire calendar day will be charged for any period of time within a calendar day that the ramp remains closed beyond 12:01 AM, on May 26, 2017.

**Interim Completion of Work 06/27/2017**
If the contractor fails to complete all of the work necessary to open Structure B-40-853 and the pavement for the system ramp N-E that carries traffic from southbound USH 45 to eastbound IH 94 prior to 12:01 AM on June 28, 2017, the department will assess the contractor $50,000 in interim liquidated damages per day for each calendar day after 12:01 AM on June 28, 2017, that the N-E Ramp is not open to vehicular traffic. An entire calendar day will be charged for any period of time within a calendar day that the ramp remains closed beyond 12:01 AM, on June 28, 2017.

**Interim Completion of Work 11/21/2017**
If the contractor fails to complete all concrete paving as shown in Stage 6 and coordination measures necessary on the STH 100 entrance ramp to westbound IH 94 to restore traffic on the ramp prior to 12:01 AM on November 22, 2017, the department will assess the contractor $10,000 in

interim liquidated damages per day for each calendar day after 12:01 AM on November 22, 2017, that the STH 100 entrance ramp to westbound IH 94 is not open to vehicular traffic. An entire calendar day will be charged for any period of time within a calendar day that the ramp remains closed beyond 12:01 AM, on November 22, 2017.

**Interim Completion of Work 11/21/2017**
If the contractor fails to complete all of the work necessary to open Structure B-40-854 and the pavement for the system ramp E-S that carries traffic from westbound IH 94 to southbound IH 894/USH 45 prior to 12:01 AM on November 22, 2017, the department will assess the contractor $30,000 in interim liquidated damages per day for each calendar day after 12:01 AM on November 22, 2017, that the E-S Ramp is not open to vehicular traffic. An entire calendar day will be charged for any period of time within a calendar day that the ramp remains closed beyond 12:01 AM, on November 22, 2017.

**Interim Completion of Work National Avenue Entrance Ramp**
If the contractor fails to complete all concrete paving, shoulder and concrete barrier work, as shown in Stage 7 and coordination measures necessary on IH 894/USH 45 and the National Avenue entrance ramp to southbound IH 894/USH 45 to restore traffic on the ramp within 21 calendar days of the closure date, the department will assess the contractor $10,000 in interim liquidated damages for each calendar day that the ramp remains closed after 12:01 AM, on the 22nd calendar day after the closure begins. An entire calendar day will be charged for any period of time within a calendar day that the ramp remains closed beyond 12:01 AM, on the 22nd day, the entrance ramp is not open.

**Interim Completion of Work 12/21/2017**
If the contractor fails to complete all work to get into Stage 8 traffic configuration, as shown in the plans, prior to 12:01 AM on December 22, 2017, the department will assess the contractor $25,000 in interim liquidated damages per calendar day, or portion thereof, for each calendar day after 12:01 AM on December 22, 2017, that the project is not into Stage 8 traffic configuration. An entire calendar day will be charged for any period of time within a calendar day that the project is not into Stage 8 traffic configuration beyond 12:01 AM December 22, 2017.

**Interim Completion of Work 08/29/2018**
If the contractor fails to complete all of the work necessary to open to full width and in final configuration all travelled roadway and shoulder lanes, all final pavement marking, signage, traffic control devices, and safety appurtenances by 12:01 AM on August 30, 2018, the department will assess the contractor $50,000 in interim liquidated damages per calendar day for each calendar day after 12:01 AM on August 30, 2018, that this work is not completed. An entire calendar day will be charged for any period of time within a calendar day that this work remains uncompleted beyond 12:01 AM, on August 30, 2018.

**Final Completion of Work**
If contract time expires prior to completing all work specified in the contract, additional liquidated damages will be affixed according to standard spec 108.11.

**123. Luminaires Utility LED B, Item 659.1120; Luminaires Utility LED D, Item 659.1130.**

*Replace entire article language with the following:*

*Supplement standard spec 659.2 with the following:*

(2) The luminaire shall be equipped with a 10KV surge protection. Test surge protection in accordance to ANSI/IEEE C62.45 per ANSI/IEEE C62.42.2 scenario 1 category C high exposure 10KV/10VA waveforms.

(4) Furnish each luminaire with an ANSI C136.40 compliant, 7-prong, locking type, photo control receptacle. Furnish and install a rain tight shorting cap.

(5) Furnish shop drawings as specified in 506.3.2, except submit 5 copies with the materials list. Ensure the drawings contain sufficient detail to allow satisfactory review and show the dimensions of all equipment shown in the plans.

**206. Probeam Luminaire, Item SPV.0060.1127**

*Replace the section titled* **B.2 Luminaire** *with the following:*

**B.2 Luminaire**
Luminaire housing shall be die cast from low copper content A360 aluminum with integral heat fins to optimize thermal management through convective and conductive cooling. Housing shall be designed for either wall or ceiling mounting using heavy duty stainless steel brackets. Housing shall have three ¾" NPT threaded entries for connecting with conduit raceway.

Luminaire door shall be completely sealed using a silicone gasket and secured by minimum 6 stainless steel latches or Alloy 410 stainless steel bolts with captive zinc-plated fasteners. Housing door shall be equipped with two internal hinges for easy access to internal components including drivers, surge protection, LED arrays, quick disconnect plugs and high and low voltage terminal blocks. Luminaire door shall encase prismatic borosilicate glass lens.

Complete assembly shall be tested to withstand 3G vibration per ANSI C136.31-2001 and shall be rated IP66 per IEC60529.

*Replace the section titled* **B.6 Ratings / Certifications** *with the following:*

**B.6 Ratings / Certifications**
Luminaires shall be rated and/or certified as follows:

- IP-66 minimum weather fastness rating
- IDA dark sky full cutoff compliant
- IEC 61000 - Electromagnetic Compatibility Test (EMC)
- FCC Title 47 CFR Part 18 – Federal Communication Commission
- ANSI\IEEE\C62.41
- IEEE 519 – Harmonic Control in Electrical Power Systems
- ANSI C82.77:2002 Harmonic Distortion
- ANSI C136.31:2001 – Luminaire Vibration
- ASTM B 117:2003 – Salt Spray Test
- IEC 60529 – Degrees of protection provided by enclosure
- UL 1598 – UL Wet Location @ 40C
- ROHS compliance for key components

**405. Partially Removing Existing Drilled Shafts, Item SPV.0105.0050**

**A Description**
This special provision describes partially removing the two existing drilled shaft foundations at STA 193+63, 199'LT and at STA 193+66, 175'LT to an elevation 2' below the finish grade and disposing of resulting materials in accordance to the applicable provisions of standard specifications 203 and as hereinafter provided.

The existing drilled shafts are fully reinforced concrete drilled shaft foundations. Each drilled shaft is approximately 8' in diameter and 70' deep. Both drilled shaft foundations are in conflict with

proposed grading and will be removed to an elevation 2’ below the finish grade. It is anticipated that approximately the top 10’ of each shaft will have to be removed.

**B (Vacant)**

**C Construction**
Remove and dispose of both of the existing drilled shaft foundations to an elevation that is 2’ below the finish grade.

**D Measurement**
The department will measure Partially Removing Existing Drilled Shafts as a lump sum unit of work, acceptably completed.

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.0050 | Partially Removing Existing Drilled Shafts | LS |

Payment is full compensation for removing the drilled shafts and for hauling and disposing of all materials

**406. Crash Cushions Permanent Low Maintenance and Crash Cushions Temporary.**

Complete work in accordance with Section 614 of the standard specifications.

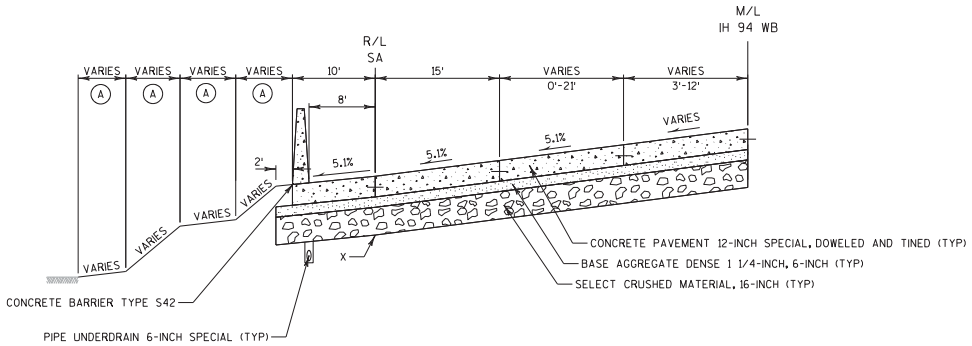
*Replace section 614.2.7 with the following:*

Use Model SCI 100GM Crash Attenuator from Smart Cushion Innovations (SCI) Products for permanent and temporary crash cushions.

**Schedule of Items**
Attached, dated August 28, 2015, are the revised Schedule of Items Pages 1 – 4, 18, 22, 46, 105, and 128 – 142.

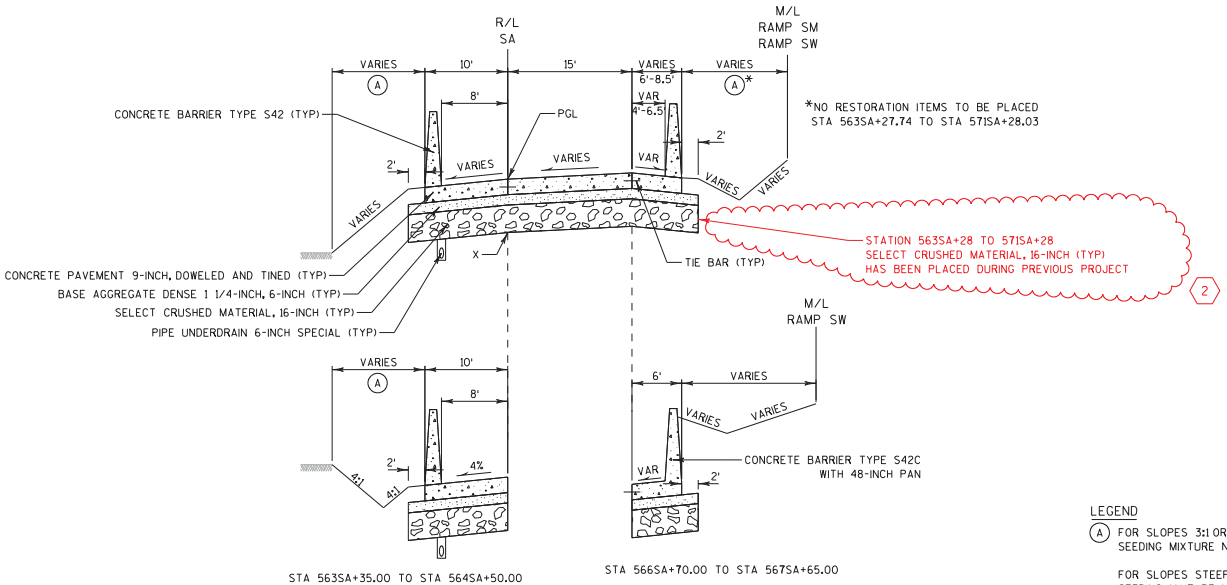
**Plan Sheets**
The following 8½ x 11-inch sheets are attached and made part of the plans for this proposal: 206, 398, 957, 1621, 1664, 1924, 2353, 2862, 2868, 3850, 3852

END OF ADDENDUM




## TYPICAL FINISHED SECTION
## RAMP SA

STA 575SA+23.43 TO STA 577SA+88.48




STA 563SA+35.00 TO STA 564SA+50.00

STA 566SA+70.00 TO STA 567SA+65.00

## TYPICAL FINISHED SECTION
## RAMP SA

STA 563SA+27.74 TO STA 571SA+28.03
STA 572SA+35.53 TO STA 575SA+23.43

NOTES

PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATION
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT

LEGEND

(A) FOR SLOPES 3:1 OR FLATTER, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 30 & FERTILIZER TYPE B

FOR SLOPES STEEPER THAN 3:1, USE 6" TOPSOIL SPECIAL, SEEDING MIXTURE NO. 80 & FERTILIZER TYPE B

(B) 6" TOPSOIL SPECIAL, SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX & NURSE CROP

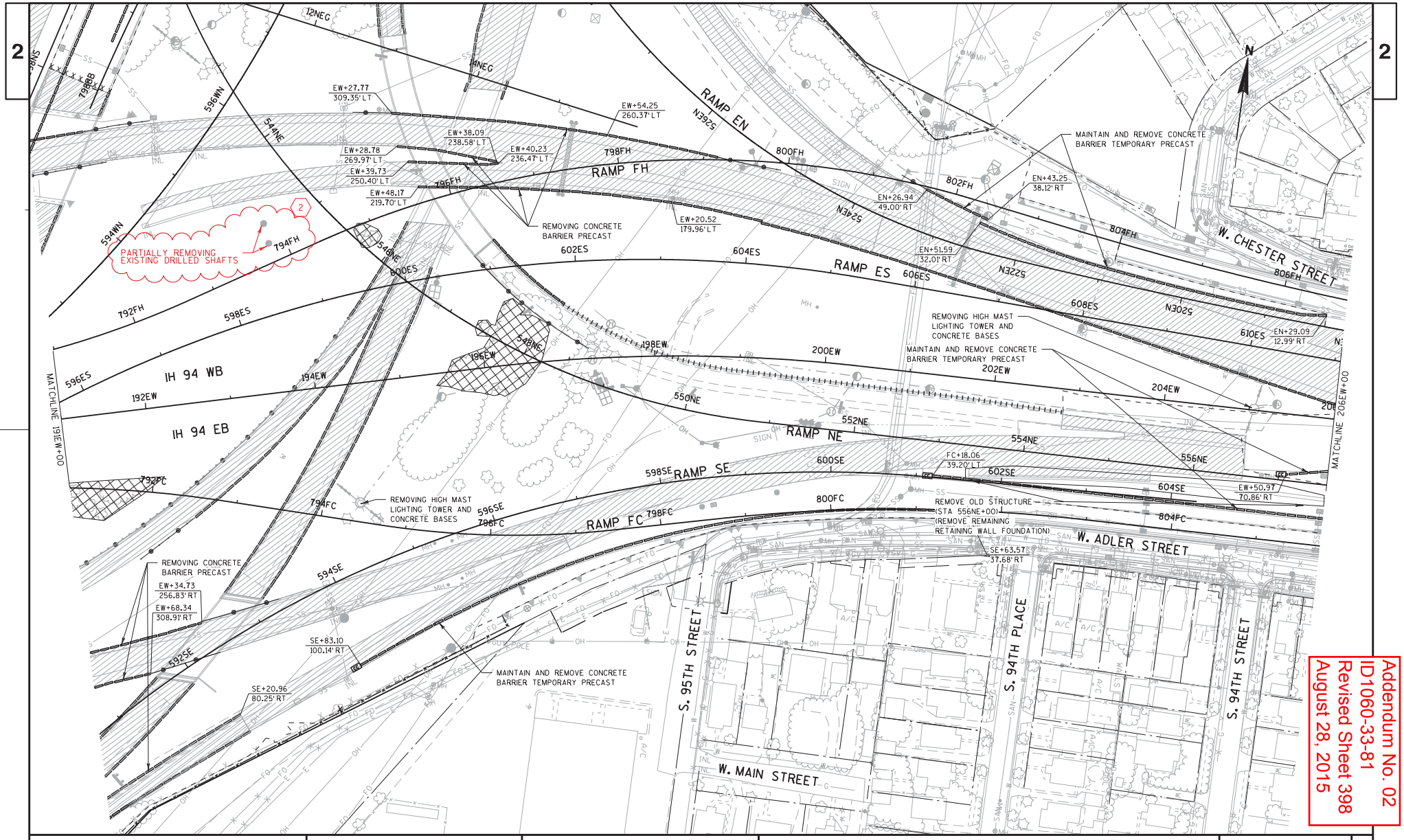
(C) 6" TOPSOIL SPECIAL, SOD LAWN & FERTILIZER TYPE B

NOTE

LOCATIONS OF EROSION MAT ARE SHOWN ON EROSION CONTROL PLANS

Addendum No. 02
ID1060-33-81
Revised Sheet 206
August 28, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | TYPICAL SECTIONS | SHEET 206 | E |
|---|---|---|---|---|---|



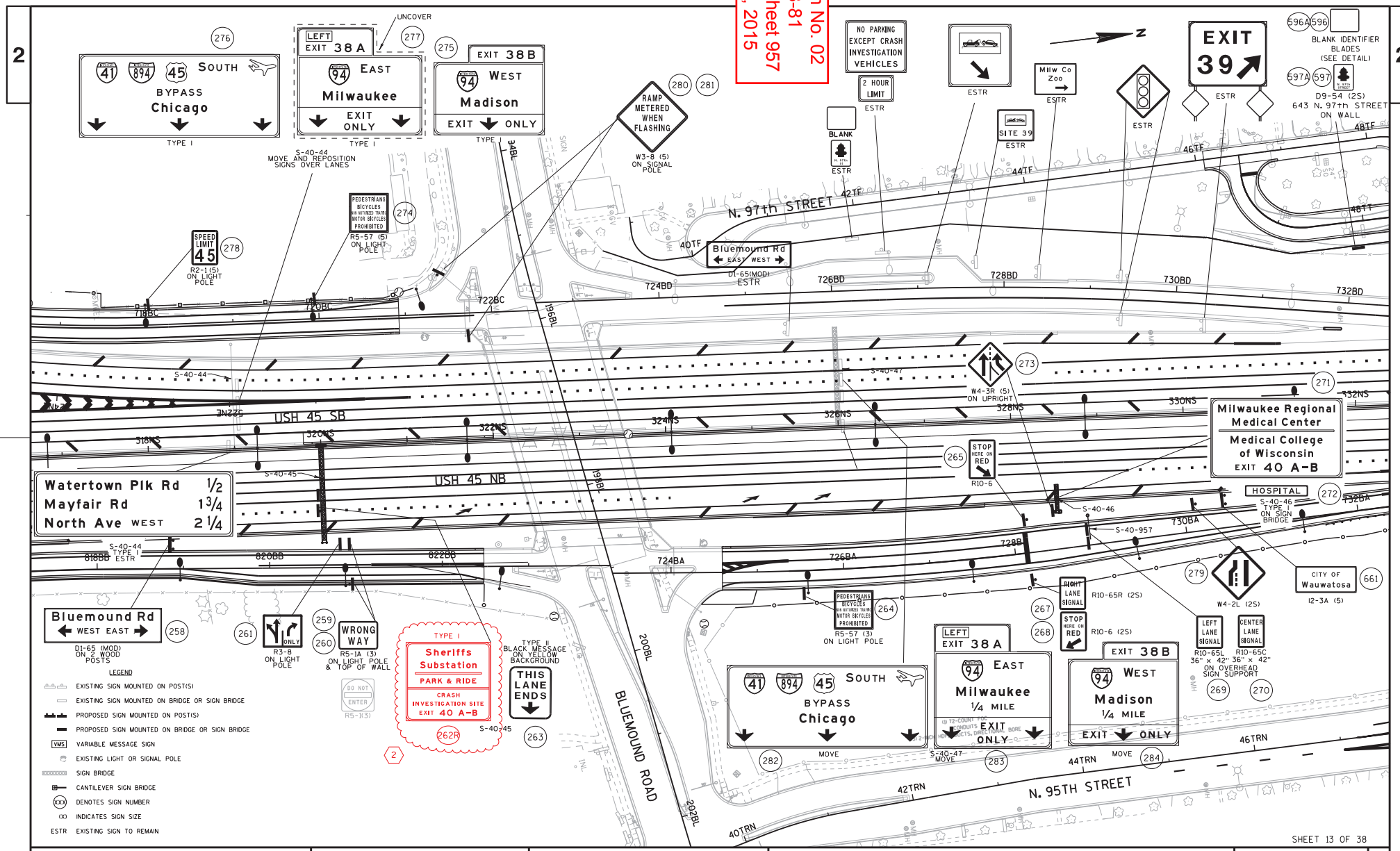

Addendum No. 02
ID1060-33-81
Revised Sheet 398
August 28, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | REMOVAL PLANS | SHEET 398 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\021120_rm.dgn PLOT DATE : 26-AUG-2015 15:15 PLOT BY : MSCD1S PLOT NAME : 021120_rm PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42

Addendum No. 02
ID1060-33-81
Revised Sheet 957
August 28, 2015




SHEET 13 OF 38

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | PERMANENT SIGNING | SHEET 957 | E |
|---|---|---|---|---|---|

FILE NAME : J:\projects\d2_10603345\81\sign\023213_ps.dgn PLOT DATE : 25-AUG-2015 06:33 PLOT BY : dotcmv PLOT NAME : PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42

## REMOVING OLD STRUCTURE

| CATEGORY | ROADWAY | STATION | OFFSET | 203.0200.0021 REMOVING OLD STRUCTURE (STA 236NS+00) LS | 203.0200.0022 REMOVING OLD STRUCTURE (STA 252NS+65) LS | 203.0200.0023 REMOVING OLD STRUCTURE (STA 253NS+50) LS | 203.0200.0025 REMOVING OLD STRUCTURE (STA 155EW+25) LS | 203.0200.0026 REMOVING OLD STRUCTURE (STA 159EW+00) LS | 203.0200.0027 REMOVING OLD STRUCTURE (STA 556NE+00) LS | 203.0200.0028 REMOVING OLD STRUCTURE (STA 734BA+50) LS | 203.0200.0029 REMOVING OLD STRUCTURE (STA 345NS+00) LS | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **MAINLINE** | | | | | | | | | | | |
| 1000 | IH 894/ USH 45 NS | | | | | | | | | | | |
| | | 236NS+00 | LT | 1 | -- | -- | -- | -- | -- | -- | -- | REMOVE REMAINING FOUNDATIONS OF S-40-44 |
| | | 252NS+65 | LT | -- | 1 | -- | -- | -- | -- | -- | -- | REMOVE REMAINING FOUNDATION OF S-40-156 |
| | | 253NS+50 | LT | -- | -- | 1 | -- | -- | -- | -- | -- | REMOVE REMAINING PIERS OF B-40-128 |
| | | 345NS+00 | LT | -- | -- | -- | -- | -- | -- | -- | 1 | REMOVE SIGN STRUCTURE FOUNDATION |
| | IH 94 WB | | | | | | | | | | | |
| | | 155EW+50 | LT/RT | -- | -- | -- | 1 | -- | -- | -- | -- | REMOVE REMAINING FOUNDATION OF B-40-109 AND B-40-110 |
| | | 159EW+00 | LT | -- | -- | -- | -- | 1 | -- | -- | -- | REMOVE REMAINING PIERS AND FOUNDATION OF B-40-106 |
| | **RAMPS** | | | | | | | | | | | |
| | RAMP NE | | | | | | | | | | | |
| | | 556NE+00 | | -- | -- | -- | -- | -- | 1 | -- | -- | REMOVE REMAINING RETAINING WALL FOUNDATION |
| | RAMP BA | | | | | | | | | | | |
| | | 734BA+50 | | -- | -- | -- | -- | -- | -- | 1 | -- | REMOVE REMAINING CENTER PIER FOUNDATION |
| | **LOCAL ROADS** | | | | | | (1) | | | | | |
| | HANK AARON STATE TRAIL | | | | | | | | | | | |
| | | 180HA+50 | LT | -- | -- | -- | -- | -- | -- | -- | -- | BOX CULVERT AT HANK AARON STATE TRAIL |
| | TOTAL | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |

Addendum No. 02
ID1060-33-81
Revised Sheet 1621
August 28, 2015

## REMOVING CONCRETE SURFACE PARTIAL DEPTH

| CATEGORY | STAGE | ROADWAY | STATION | TO | STATION | OFFSET | 204.0109.S REMOVING CONCRETE SURFACE PARTIAL DEPTH SF |
|---|---|---|---|---|---|---|---|
| | | **LOCAL ROADS** | | | | | |
| 1000 | 3 | N. 97TH STREET | 46TF+09 | - | 49TF+05 | RT/LT | 7,771 |
| | | TOTAL | | | | | 7,771 |

## PARTIALLY REMOVING EXISTING DRILLED SHAFTS

(2)

| CATEGORY | ROADWAY | STATION | OFFSET | SPV.0105.0050 PARTIALLY REMOVING EXISTING DRILLED SHAFTS LS |
|---|---|---|---|---|
| | **MAINLINE** | | | |
| 1000 | IH 94 WB | | | |
| | | 193EW+65 | LT | 1 |
| | TOTAL | | | 1 |

## REMOVING PAVEMENT

| CATEGORY | STAGE | ROADWAY | STATION | TO | STATION | OFFSET | 204.0100 REMOVING PAVEMENT SY |
|---|---|---|---|---|---|---|---|
| | | **MAINLINE** | | | | | |
| 1000 | 1 | IH 894/ USH 45 SB | | | | | |
| | | | 286NS+20 | - | 288NS+58 | LT | 1,231 |
| | | | 289NS+79 | - | 295NS+46 | LT | 3,111 |
| | | | 296NS+82 | - | 300NS+31 | LT | 1,433 |
| | | IH 94 EB | | | | | |
| | | | 113EW+10 | - | 125EW+66 | LT/RT | 1,537 |
| | | IH 94 WB | | | | | |
| | | | 113EW+02 | - | 125EW+73 | LT | 2,891 |
| | | **RAMPS** | | | | | |
| | | RAMP WS | | | | | |
| | | | 580WS+24 | - | 585WS+78 | LT/RT | 1,703 |
| | | RAMP ES | | | | | |
| | | | 592ES+30 | | 593SE+52 | LT | 394 |
| | | SUBTOTAL | | | | | 12,300 |
| | | **MAINLINE** | | | | | |
| 1000 | 2 | IH 894/ USH 45 NB | | | | | |
| | | | 203NS+29 | - | 219NS+00 | RT | 2,603 |
| | | | 227NS+00 | - | 228NS+66 | RT | 210 |

## REMOVING PAVEMENT

| CATEGORY | STAGE | ROADWAY | STATION | TO | STATION | OFFSET | 204.0100 REMOVING PAVEMENT SY |
|---|---|---|---|---|---|---|---|
| | | | 231NS+03 | - | 236NS+61 | RT | 371 |
| | | IH 894/ USH 45 SB | | | | | |
| | | | 268NS+00 | - | 279NS+39 | LT/RT | 1,636 |
| | | | 280NS+80 | - | 284NS+77 | LT | 733 |
| | | | 327NS+00 | - | 333NS+60 | RT | 1,437 |
| | | | 335NS+31 | - | 349NS+45 | RT | 7,618 |
| | | IH 94 EB | | | | | |
| | | | 88EW+00 | - | 99EW+49 | RT | 2,184 |
| | | | 101EW+72 | - | 111EW+43 | RT | 1,033 |
| | | | 113EW+02 | - | 122EW+32 | RT | 1,222 |
| | | **RAMPS** | | | | | |
| | | RAMP LA | | | | | |
| | | | 703LA+32 | - | 710LA+03 | LT/RT | 2,184 |
| | | RAMP GA | | | | | |
| | | | 756GA+45 | - | 762GA+09 | LT/RT | 1,611 |
| | | RAMP GB | | | | | |
| | | | 740GB+67 | - | 743GB+31 | LT | 397 |

(CONTINUED ON NEXT SHEET)



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\030201_mq_pav.ppt PLOT DATE : 8/26/2015 3:16:09 PM PLOT BY : MSCCEJ PLOT NAME : 030201_mq_pav3 PLOT SCALE : 1:1

EARTH WORK SUMMARY (CONTINUED)

| Division | From/To Station | | | Location | 205.0100 Excavation Common (CY) (1) | SPV. 0035.0100 EBS Excavation (CY) (3) | Salvaged/ Unusable Pavement Material (CY) | Available Material (4) | SPV. 0035.0101 EBS Backfill (CY) (3) | Unexpanded Fill (5) | Expanded Fill (6) | Mass Ordinate +/- (7) | Waste (8) | Borrow | Comment: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cut (2) | | | | Factor 1.00 | | Factor 1.20 | | | Item 208.0100 | |
| 5 | | | | MAINLINE | | | | | | | | | | | |
| | 162+00 | TO | 180+00 | IH 94 EB | 15,205 | 213 | 960 | 14,245 | 213 | 844 | 1,013 | 13,232 | 13,232 | 0 | |
| | | | | RAMPS | | | | | | | | | | | |
| | 560+45 | TO | 566+11 | WS | 0 | 0 | 0 | 0 | 0 | 1,159 | 1,391 | -1,391 | -1,391 | 0 | |
| | 550+81 | TO | 564+96 | NE | 1,390 | 19 | 0 | 1,390 | 19 | 539 | 647 | 743 | 743 | 0 | |
| | 597+34 | TO | 601+30 | SE | 601 | 8 | 29 | 572 | 8 | 751 | 902 | -330 | -330 | 0 | |
| | 566+78 | TO | 575+34 | SB | 2,792 | 39 | 290 | 2,502 | 39 | 670 | 804 | 1,697 | 1,697 | 0 | |
| | 801+60 | TO | 809+22 | FC | 615 | 9 | 500 | 114 | 9 | 0 | 0 | 114 | 114 | 0 | |
| | | | | TEMPORARY | | | | | | | | | | | |
| | 9+58 | TO | 19+06 | RAMP NSM | 728 | 10 | 261 | 467 | 10 | 86 | 103 | 365 | 365 | 0 | 2 |
| | 15+10 | TO | 21+31 | RAMP EWU | 252 | 4 | 153 | 99 | 4 | 35 | 42 | 57 | 57 | 0 | |
| | 11+00 | TO | 17+29 | RAMP EWV | 231 | 3 | 0 | 231 | 3 | 5 | 6 | 225 | 225 | 0 | |
| | 10+28 | TO | 19+67 | RAMP ENA | 3,899 | 55 | 22 | 3,877 | 55 | 594 | 713 | 3,164 | 3,164 | 0 | |
| | 11+00 | TO | 15+47 | RAMP SWD | 111 | 2 | 0 | 111 | 2 | 85 | 102 | 9 | 9 | 0 | |
| | | | | GRADING | | | | | | | | | | | |
| | 11+15 | TO | 13+30 | SW CORE POND (PSW) | 18,913 | 265 | 0 | 18,913 | 265 | 1 | 1 | 18,912 | 18,912 | 0 | |
| Division 5 Subtotal Stage 5 | | | | | 44,736 | 626 | 2,215 | 42,520 | 626 | 4,769 | 5,722 | 36,798 | 36,798 | 0 | |

Addendum No. 02
ID1060-33-81
Revised Sheet 1664
August 28, 2015

(CONTINUED ON NEXT SHEET)



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\030201_mq_pav.ppt PLOT DATE : 8/26/2015 12:40:42 PM PLOT BY : MSCCEJ PLOT NAME : 030201_mq_pav46 PLOT SCALE : 1:1

| SIGN NO. | SIGN CODE & SIZE | SIGN MESSAGE | SIGN SIZE W [IN.] x H [IN.] | 637.2210 SIGNS TYPE II REFLECTIVE H [SF] | 637.2230 SIGNS TYPE II RELFECTIVE F [SF] | 637.2215 SIGNS TYPE II REFLECTIVE H FOLDING [SF] | 638.3000 REM SMALL SIGN SUP [EA] | 638.2102 MOVING SIGNS TYPE II [EA] | 634.0618 POSTS WOOD 4" X 6" X 18' [EA] | 634.0622 POSTS WOOD 4" X 6" X 22' [EA] | 634.0816 POSTS TUBULAR STEEL 2" X 2" X 16' [EA] | 643.0920 TRAFFIC CONTROL COVERING SIGNS TYPE II [EA] | MOUNT ON SAME POST AS SIGN # | REMARKS / NEW SIGN LOCATION | TYPE I SIGN SIZE W x H [FT.] x [FT.] | 637.1220 SIGNS TYPE I REFLECTIVE SH [SF] | 637.1230 SIGNS TYPE I REFLECTIVE F [SF] | 643.0910 TRAFFIC CONTROL COVERING SIGNS TYPE I [EA] | 638.2101 MOVING SIGNS TYPE I [EA] | 638.3100 REM STR STEEL SIGN SUP [EA] | STEEL POST TYPE | 636.0100 SIGN SUPPORTS CONCRETE MASONRY [CY] | 636.0500 SIGN SUPPORTS STEEL REINF. [LBS] | 635.0200 SIGN SUPPORTS STRUCTURAL STEEL HS [EST.LBS] | 635.0300 SIGN SUPPORTS REPLACING BASE CONN. BOLTS [EA] | SPV.0060.0416 SIGN SUPPORT SPECIAL MOUNTING [EA] | PHASE SIGN TO BE INSTALLED | INFO ONLY-POST LENGTHS TO BE VERIFIED BY CONTRACTOR: POST NO 1 LENGTH [FT] | POST NO 2 LENGTH [FT] | OFF SET DISTANCE [FT] | DIST BTWN POSTS "S" [FT] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 258 | D1-65 (MOD) | BLUEMOUND RD<br>[A] WEST EAST [A] | 102 X 30 | 21.250 | | | | | | 2 | | | | MOUNT ON LIGHT POLE & TOP OF WALL | | | | | | | | | | | | | 8 | | | | |
| 259 | R5-1A (3) | WRONG WAY | 42 X 30 | 8.750 | | | | | | | | | | MOUNT ON LIGHT POLE & TOP OF WALL | | | | | | | | | | | | | 8 | | | | |
| 260 | R5-1A (3) | WRONG WAY | 42 X 30 | 8.750 | | | | | | | | | | MOUNT ON LIGHT POLE & TOP OF WALL | | | | | | | | | | | | | 8 | | | | |
| 261 | R3-8 (2S) | LEFT, AHEAD/RIGHT ONLY | 36 X 30 | 7.500 | | | | | | | | | 259 | MOUNT ON LIGHT POLE | | | | | | | | | | | | | 8 | | | | |
| 262R | | SHERIFFS<br>SUBSTATION<br>PARK & RIDE<br>CRASH<br>INVESTIGATION SITE<br>EXIT 40 A-B | 2 | | | | | | | | | | | MOUNT ON SIGN BRIDGE S-40-45<br>I BEAMS INCIDENTAL | 14 X 13 | 182.00 | | | | | | | | | | | 4 | | | | |
| 263 | W9-62 (5) | THIS<br>LANE<br>ENDS<br>[A] | 72 X 90 | | 45.000 | | | | | | | | | MOUNT ON SIGN BRIDGE S-40-45<br>I BEAMS INCIDENTAL<br>YELLOW BACKGROUND. BLACK LETTERS. | | | | | | | | | | | | | 4 | | | | |
| 264 | R5-57 (5) | PEDS, ETC PROHIBITED | 36 X 36 | 9.000 | | | | | | | | | | MOUNT ON LIGHT POLE | | | | | | | | | | | | | 4 | | | | |
| 265 | R10-6 (MOD) (2S) | STOP HERE ON RED [A] | 24 X 36 | 6.000 | | | | | 1 | | | | | | | | | | | | | | | | | | 4 | | | | |
| 266 | NOT USED | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 267 | R10-6R (2S) | RIGHT LANE SIGNAL | 24 X 30 | 5.000 | | | | | 1 | | | | | | | | | | | | | | | | | | 4 | | | | |
| 268 | R10-6 (2S) | STOP HERE ON RED [A] | 24 X 36 | 6.000 | | | | | | | | | 267 | | | | | | | | | | | | | | 4 | | | | |
| 269 | R10-6L (MOD) | LEFT LANE SIGNAL | 36 X 42 | 10.500 | | | | | | | | | | MOUNT ON S-40-95? OVERHEAD SIGN SUPPORT | | | | | | | | | | | | | 4 | | | | |
| 270 | R10-6C (MOD) | CENTER LANE SIGNAL | 36 X 42 | 10.500 | | | | | | | | | | MOUNT ON S-40-95? OVERHEAD SIGN SUPPORT | | | | | | | | | | | | | 4 | | | | |
| 271 | E3-1 | MILWAUKEE REGIONAL<br>MEDICAL CENTER<br>MEDICAL COLLEGE<br>OF WISCONSIN<br>EXIT 40 A-B | | | | | | | | | | | | MOUNT ON SIGN BRIDGE S-40-46<br>I BEAMS INCIDENTAL | 19 X 11.5 | 218.50 | | | | | | | | | | | 4 | | | | |
| 272 | | HOSPITAL | | | | | | | | | | | 271 | MOUNT ON SIGN BRIDGE S-40-46<br>BLUE BACKGROUND. WHITE LETTERS. I BEAMS INCIDENTAL. | 9 X 1.5 | 13.50 | | | | | | | | | | | 4 | | | | |
| 273 | W4-3R (5) | MERGE ADDED LANE FROM R | 48 X 48 | | 16.000 | | | | | | | | | MOUNT ON UPRIGHT OF S-40-46 | | | | | | | | | | | | | 4 | | | | |
| 274 | R5-57 (5) | PEDS, ETC PROHIBITED | 36 X 36 | 9.000 | | | | | | | | | | MOUNT ON LIGHT POLE | | | | | | | | | | | | | 4 | | | | |
| 275 | E6-1 | | | | | | | | | | | | | REPOSITION EXISTING SIGN OVER LANES | | | | | 1 | | | | | | | | 4 | | | | |
| 276 | E6-1 | | | | | | | | | | | | | REPOSITION EXISTING SIGN OVER LANES | | | | | 1 | | | | | | | | 4 | | | | |
| 277 | E6-1 | | | | | | | | | | | | | REPOSITION EXISTING SIGN OVER LANES<br>UNCOVER EXISTING SIGN. SEE WZ QTY & PLANS. | | | | | 1 | | | | | | | | 4 | | | | |
| 278 | R2-1 (5) | SPEED LIMIT 45 | 48 X 60 | 20.000 | | | | | | | | | | MOUNT ON LIGHT POLE | | | | | | | | | | | | | 6 | | | | |
| 279 | W4-2L (2S) | LANE REDUCTION TRANSITION | 36 X 36 | | 9.000 | | | | 1 | | | | | | | | | | | | | | | | | | 4 | | | | |
| 280 | W3-8 (5) | RAMP METERED WHEN FLASH | 48 X 48 | | 16.000 | | | | | | | | | MOUNT ON SIGNAL POLE | | | | | | | | | | | | | 6 | | | | |
| 281 | W3-8 (5) | RAMP METERED WHEN FLASH | 48 X 48 | | 16.000 | | | | | | | | | MOUNT ON SIGNAL POLE | | | | | | | | | | | | | 6 | | | | |
| 282 | E6-1 | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 4 | | | | |
| 283 | E6-1 | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 4 | | | | |
| 284 | E6-1 | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 4 | | | | |
| 285 | EXISTING ASSEMBLY | | | | | | | | | | | 1 | | UNCOVER EXISTING SIGN. SEE WZ QTY & PLANS. | | | | | | | | | | | | | 4 | | | | |
| 286 | EXISTING ASSEMBLY | | | | | | | | | | | 1 | | UNCOVER EXISTING SIGN. SEE WZ QTY & PLANS. | | | | | | | | | | | | | 4 | | | | |
| 287 | A11-1-7 (MOD) | | | | | | | | | | | 1 | | UNCOVER EXISTING SIGN. SEE WZ QTY & PLANS. | | | | | | | | | | | | | 4 | | | | |
| 288 | EXISTING ASSEMBLY | | | | | | | | | | | 1 | | UNCOVER EXISTING SIGN. SEE WZ QTY & PLANS. | | | | | | | | | | | | | 4 | | | | |
| 289 | R1-1F (3) | FOLDING STOP | 36 X 36 | | | 7.460 | | | | | | | | MOUNT ON SIGNAL POLE | | | | | | | | | | | | | 8 | | | | |
| 290 | R1-1F (3) | FOLDING STOP | 36 X 36 | | | 7.460 | | | | | | | | MOUNT ON SIGNAL POLE | | | | | | | | | | | | | 8 | | | | |
| 291 | EXISTING ASSEMBLY | | | | | | | | | | | 1 | | UNCOVER EXISTING SIGN. SEE WZ QTY & PLANS. | | | | | | | | | | | | | 4 | | | | |
| 292 | W12-1D (2S) | DOUBLE DOWN ARROWS | 24 X 24 | | 4.000 | | | | 1 | | | | | 2 FOOT MOUNTING HEIGHT | | | | | | | | | | | | | 8 | | | | |
| 293 | R5-1 (3) | DO NOT ENTER | 36 X 36 | 9.000 | | | | | | | | | 289 | | | | | | | | | | | | | | 8 | | | | |
| 294 | R5-1 (3) | DO NOT ENTER | 36 X 36 | 9.000 | | | | | | | | | 290 | | | | | | | | | | | | | | 8 | | | | |
| 295 | R5-1A (2S) | WRONG WAY | 36 X 24 | 6.000 | | | | | | | | | 293 | | | | | | | | | | | | | | 8 | | | | |
| 296 | R5-1A (2S) | WRONG WAY | 36 X 24 | 6.000 | | | | | | | | | 294 | | | | | | | | | | | | | | 8 | | | | |
| 297 | A11-1-7 (MOD) | | | | | | | | | | | | | UNCOVER EXISTING SIGN. SEE WZ QTY & PLANS. | | | | 1 | | | | | | | | | 6 | | | | |
| 298 | A11-1-7 (MOD) | | | | | | | | | | | | | UNCOVER EXISTING SIGN. SEE WZ QTY & PLANS. | | | | 1 | | | | | | | | | 6 | | | | |
| 299 | W3-8 (5) | RAMP METERED WHEN FLASH | 48 X 48 | | 16.000 | | | | | | | | | MOUNT ON SIGNAL POLE | | | | | | | | | | | | | 4 | | | | |
| 300 | W3-8 (5) | RAMP METERED WHEN FLASH | 48 X 48 | | 16.000 | | | | | | | | | MOUNT ON SIGNAL POLE | | | | | | | | | | | | | 4 | | | | |
| 301 | EXISTING ASSEMBLY | | | | | | | | | | | | | UNCOVER EXISTING SIGN. SEE WZ QTY & PLANS. | | | | | | | | | | | | | 4 | | | | |
| 302 | NOT USED | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 303 | NOT USED | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 304 | M1-9-4 (MOD) | WISCONSIN AVE<br>700 NORTH | 108 X 30 | 22.500 | | | | | | | | | | MOUNT ON BRIDGE<br>BRACKET INCIDENTAL | | | | | | | | | | | | | 5 | | | | |
| 305 | W4-3R (3) | MERGE ADDED LANE FROM LE | 36 X 36 | | 9.000 | | | | | | | | | MOUNT ON LIGHT POLE | | | | | | | | | | | | | 4 | | | | |
| 306 | R4-7 (2S) | KEEP RIGHT | 24 X 30 | 5.000 | | | | | | | 1 | | | | | | | | | | | | | | | | 5 | | | | |
| 307 | R1-1F (2S) | FOLDING STOP | 30 X 30 | | | 5.180 | | | | | 1 | | | | | | | | | | | | | | | | 5 | | | | |
| 308 | R6-2L (2S) | ONE WAY LEFT ARROW | 24 X 30 | 5.000 | | | | | | | 1 | | | | | | | | | | | | | | | | 5 | | | | |
| 309 | R1-1F (2S) | FOLDING STOP | 30 X 30 | | | 5.180 | | | | | 1 | | | | | | | | | | | | | | | | 5 | | | | |
| 310 | D1-61 | N. 95TH ST<br>[A] | 66 X 24 | 11.000 | | | | | | | 1 | | | | | | | | | | | | | | | | 5 | | | | |

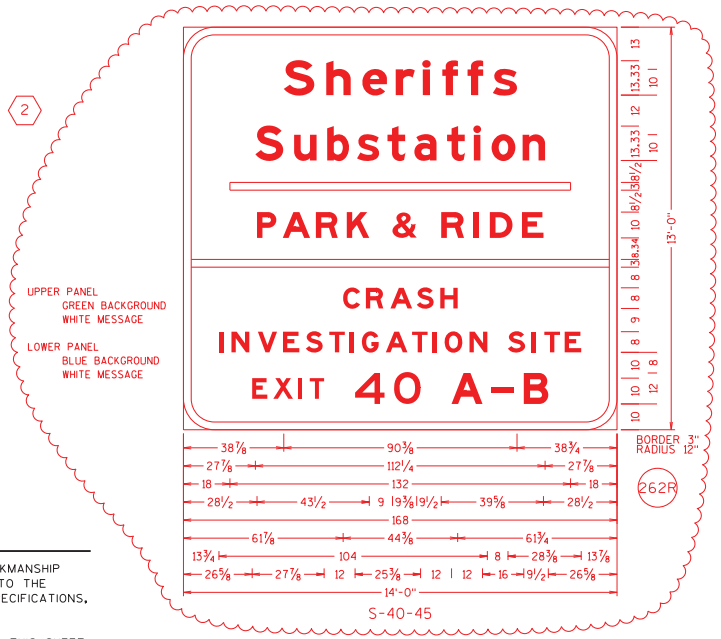
3

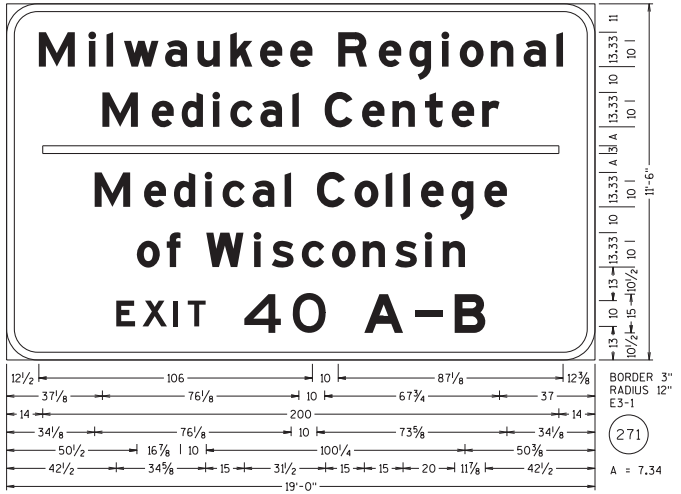
3



Addendum No. 02
ID1060-33-81
Revised Sheet 1924
August 28, 2015

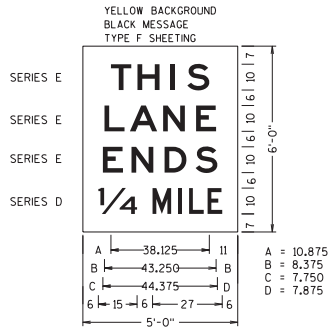
Addendum No. 02
ID1060-33-81
Revised Sheet 2353
August 28, 2015

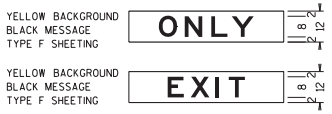


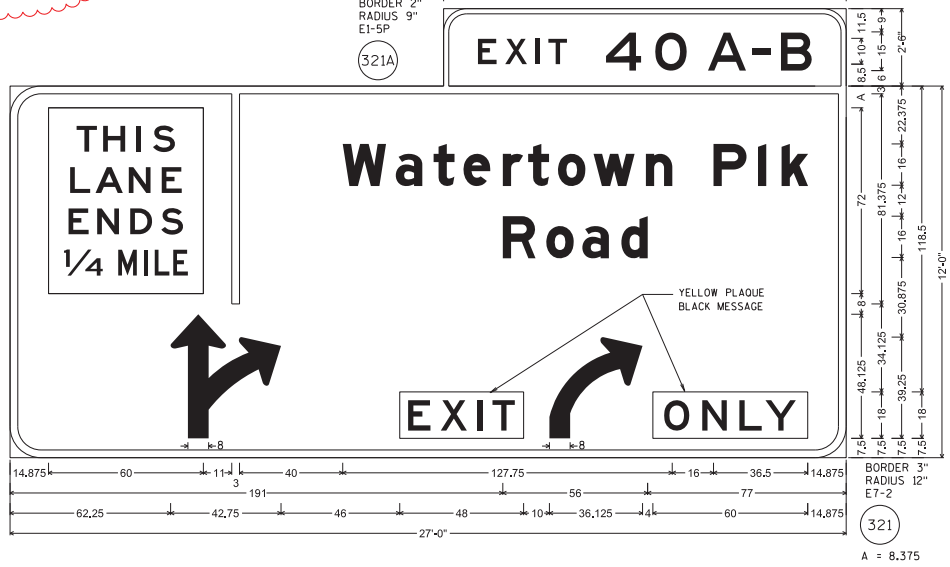




## GENERAL NOTES:

1. DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE PLANS.
2. UNLESS OTHERWISE NOTED, ALL SIGNS SHOWN ON THIS SHEET ARE "SIGNS, TYPE I".
3. UNLESS OTHERWISE NOTED, TYPE II SIGNS ON THIS SHEET SHALL HAVE "TYPE H REFLECTIVE SHEETING" AND, "TYPE H MESSAGE MATERIAL". TYPE I SIGNS SHALL HAVE TYPE SH REFLECTIVE SHEETING.
4. UNLESS OTHERWISE NOTED, ALL SIGNS SHOWN ON THIS SHEET SHALL HAVE A GREEN BACKGROUND AND WHITE MESSAGE.
5. TYPE II SIGNS ALL UPPER CASE MESSAGE (EXCEPT ON SHIELDS OR WHERE OTHERWISE NOTED) SHALL BE "SERIES E. ALL LOWER CASE MESSAGE WITH AN INITIAL UPPER CASE LETTER SHALL BE "SERIES E.
6. TYPE I SIGNS - ALL UPPER CASE MESSAGE (EXCEPT ON SHIELDS OR WHERE OTHERWISE NOTED) SHALL BE SERIES "E" MODIFIED. ALL LOWER CASE MESSAGE WITH AN INITIAL UPPER CASE LETTER SHALL BE SERIES "E" MODIFIED. ALL CAP WORDS ARE "SERIES E"
7. UNLESS OTHERWISE NOTED, ALL SIGNS SHOWN ON THIS SHEET SHALL HAVE "TYPE A" OR "TYPE C" ARROWS AS SHOWN. SEE THE STANDARD SIGN PLATES FOR FURTHER DETAILS.
8. SEE THE STANDARD SIGN PLATES FOR FURTHER DETAILS ON ROUTE MARKER SHIELDS.
9. THE SIGN NUMBER IS DENOTED IN THE CIRCLE NEAR EACH DETAIL.
10. NUMBER FRACTIONS FOR INTERCHANGE SEQUENCE SIGNS SHALL BE SERIES "E" PER PLATES A11-7 AND A11-10
11. DO NOT SCALE.



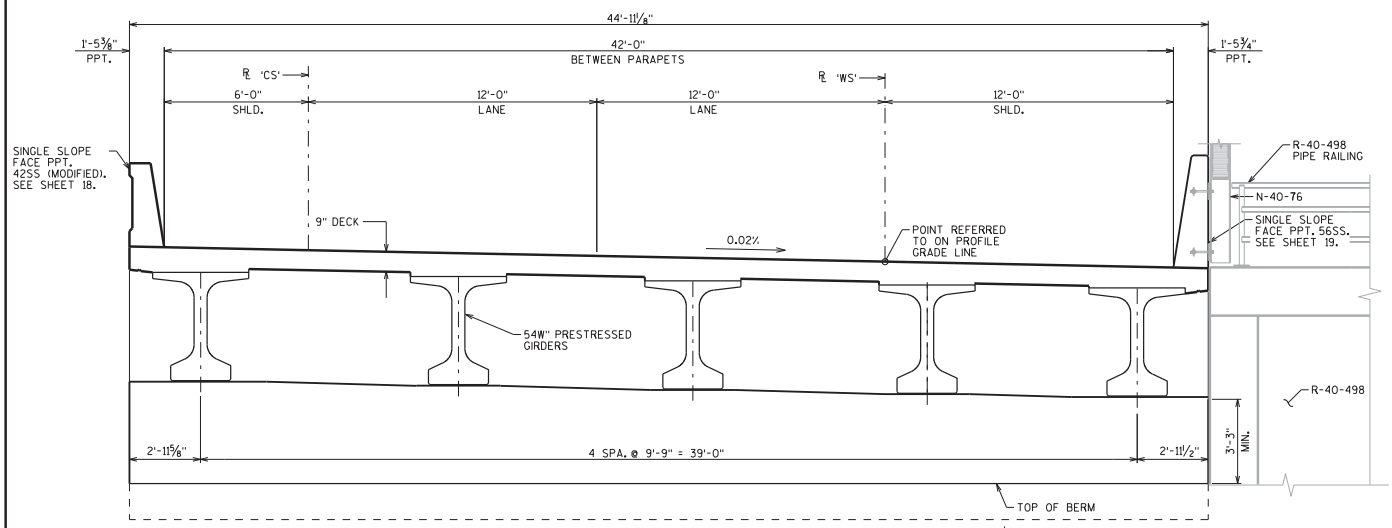

SHEET 1 OF 42

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | SIGNING DETAIL - TYPE I & II SIGNS | SCALE: 0 1/2" 1" | SHEET 2353 | E |
|---|---|---|---|---|---|---|

FILE NAME : J:\projects\d2_10603345\81\sign\070101_ms.dgn PLOT DATE : 24-AUG-2015 15:12 PLOT BY : dotcmv PLOT NAME : PLOT SCALE : 48.125:1

WISDOT/CADDS SHEET 47

| STATE PROJECT NUMBER |
|---|
| 1060-33-81 |

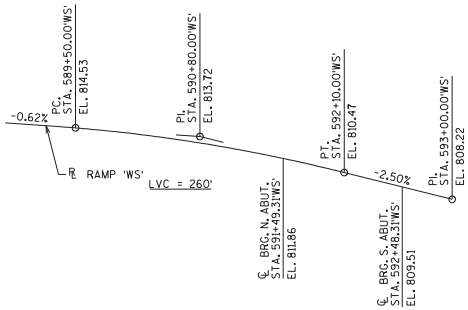



CROSS SECTION THRU ROADWAY LOOKING SOUTH

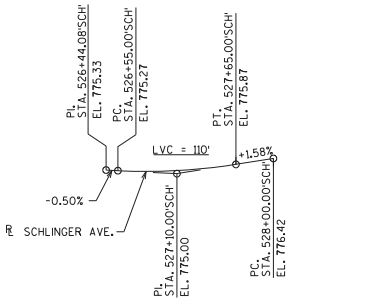
## TOTAL ESTIMATED QUANTITIES

| BID ITEM NUMBER | BID ITEMS | UNIT | SUPER. | NORTH APPR. SLAB | NORTH ABUT. | SOUTH ABUT. | SOUTH APPR. SLAB | TOTALS |
|---|---|---|---|---|---|---|---|---|
| 203.0200.0001 | REMOVING OLD STRUCTURE STA. 591WS+30 | LS | ——— | ——— | ——— | ——— | ——— | 1 |
| 203.0210.S.0007 | ABATEMENT OF ASBESTOS CONTAINING MATERIAL STRUCTURE B-40-94 | LS | ——— | ——— | ——— | ——— | ——— | 1 |
| 206.1000.0006 | EXCAVATION FOR STRUCTURES BRIDGES B-40-796 | LS | ——— | ——— | ——— | ——— | ——— | 1 |
| 210.0100 | BACKFILL STRUCTURE | CY | ——— | ——— | 50 | ——— | ——— | 50 |
| 305.0120 | BASE AGGREGATE DENSE 1* - INCH | TON | ——— | 140 | ——— | ——— | 140 | 280 |
| 502.0100 | CONCRETE MASONRY BRIDGES | CY | ——— | 10 | 32 | 32 | 12 | 86 |
| 502.3200 | PROTECTIVE SURFACE TREATMENT | SY | 590 | 130 | ——— | ——— | 130 | 850 |
| 503.0155 | PRESTRESSED GIRDER TYPE 154W-INCH | LF | 500 | ——— | ——— | ——— | ——— | 500 |
| 505.0405 | BAR STEEL REINFORCEMENT HS BRIDGES | LB | ——— | ——— | 2,500 | 2,520 | ——— | 5,020 |
| 505.0605 | BAR STEEL REINFORCEMENT HS COATED BRIDGES | LB | 34,600 | 10,440 | ——— | ——— | 10,560 | 55,600 |
| 505.0800.S | BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES | LB | 1,570 | ——— | ——— | ——— | ——— | 1,570 |
| 506.2605 | BEARING PADS ELASTOMERIC NON-LAMINATED | EACH | ——— | ——— | 5 | 5 | ——— | 10 |
| 506.4000.0004 | STEEL DIAPHRAGMS B-40-796 | EACH | 8 | ——— | ——— | ——— | ——— | 8 |
| 516.0500 | RUBBERIZED MEMBRANE WATERPROOFING | SY | 4 | ——— | 10 | 10 | ——— | 24 |
| 517.1010.S.0006 | CONCRETE STAINING B-40-796 | SF | 3,060 | 265 | 210 . | 185 | 215 | 3,935 |
| 550.1120 | PILING STEEL HP 12-INCH X 53 LB | LF | ——— | ——— | 690 | 440 | ——— | 1,130 |
| 604.0400 | SLOPE PAVING CONCRETE | SY | ——— | ——— | 14 | ——— | ——— | 14 |
| 612.0106 | PIPE UNDERDRAIN 6-INCH | LF | ——— | ——— | ——— | 45 | ——— | 45 |
| 645.0111 | GEOTEXTILE FABRIC TYPE DF SCHEDULE A | SY | ——— | ——— | ——— | 40 | ——— | 40 |
| SPV.0035.4000 | HPC MASONRY STRUCTURES | CY | 232 | 50 | ——— | ——— | 50 | 332 |
| SPV.0060.4105 | ANCHOR ASSEMBLIES NOISE BARRIER STRUCTURES | EACH | 7 | 2 | ——— | ——— | 2 | 11 |
| SPV.0060.4110 | PILE DYNAMIC ANALYZER (PDA) TESTING | EACH | ——— | ——— | 2 | 2 | ——— | 4 |
| SPV.0060.4115 | PILE DYNAMIC ANALYZER (PDA) RESTRIKES | EACH | ——— | ——— | 2 | 4 | ——— | 6 ② |
| SPV.0060.4116 | CASE PILE WAVE ANALYSIS PROGRAM (CAP/WAP) EVALUATION | EACH | ——— | ——— | 1 | 2 | ——— | 3 |
| SPV.0090.4415 | PILING SLEEVES | LF | ——— | ——— | 170 | 100 | ——— | 270 |
| SPV.0165.4700 | LONGITUDINAL GROOVING BRIDGE DECK | SF | 4,264 | 840 | ——— | ——— | 840 | 5,944 |
| | NON-BID ITEMS | | | | | | | |
| | FILLER | SIZE | ——— | ——— | ——— | ——— | ——— | ½" & ¾" |
| | EXPANDED POLYSTYRENE | SIZE | ——— | ——— | ——— | ——— | ——— | 1" |

ALL ITEMS ARE CATEGORY 2050




PROFILE GRADE LINE - RAMP 'WS'




PROFILE GRADE LINE - SCHLINGER AVENUE

## GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BEVEL ALL EXPOSED EDGES *". UNLESS OTHERWISE NOTED.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATES SYSTEM (WCCS), MILWAUKEE COUNTY ZONE, NAD 83 (2007). ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM NAVD 88.

THE UTILITY INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE. UTILITIES LABELED AS PROPOSED MAY BE INSTALLED BY OTHERS PRIOR TO THIS CONTRACT.

AT THE BACKFACE OF THE NORTH ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL. ALSO EXCLUDED IS THE " BASE AGGREGATE DENSE 1¼" AS DETAILED ON THE STRUCTURAL APPROACH SLAB SHEETS.

LIGHT WEIGHT FOAMED CONCRETE FILL (LFCF) SHALL BE PLACED BEHIND THE SOUTH ABUTMENT THIS IS NOT A BRIDGE BID ITEM. SEE R-40-527 PLANS AND ROADWAY PLANS FOR DETAILS.

ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.

THE GRADATION OF THE STRUCTURE BACKFILL SHALL MEET THE REQUIREMENTS OF SECTION 209.2.2 OF THE STANDARD SPECIFICATIONS FOR GRADE 1 MATERIAL.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE TOP OF DECK SURFACE AND TOP OF APPROACH SLAB SURFACE AND THE FRONT FACE AND THE TOP OF THE PARAPETS, INCLUDING PARAPETS ON APPROACH SLABS.

THE SLOPE OF THE FILL IN FRONT OF THE NORTH ABUTMENT SHALL BE COVERED WITH SLOPE PAVING MATERIAL TO THE EXTENT SHOWN ON SHEET 1 AND IN THE ABUTMENT DETAILS.

THE EXISTING BRIDGE B-40-94 IS A 3 SPAN PRESTRESSED GIRDER STRUCTURE. THE ENTIRE STRUCTURE WILL BE REMOVED. SEE "CONSTRUCTION STAGING" SHEET. BRIDGE PLANS DO NOT CORRESPOND TO ROADWAY STAGES. REFER TO ROADWAY STAGING PLANS FOR ADDITIONAL INFORMATION.

THE COST OF FURNISHING AND PLACING THE SIZE 2 COARSE AGGREGATE UNDER THE SLOPE PAVING SHALL BE CONSIDERED INCIDENTAL TO "SLOPE PAVING CONCRETE."

THE CONCRETE QUANTITIES FOR THE PARAPETS, SUPERSTRUCTURE DECK, APPROACH SLABS (EXCLUDING THE FOOTING), CONCRETE DIAPHRAGMS AND HAUNCH OVER GIRDERS SHALL BE PAID FOR UNDER THE BID ITEM " HPC MASONRY STRUCTURES."

THE CONTRACTOR MUST COORDINATE THE REMOVAL OF EXISTING STRUCTURE B-40-94 AND CONSTRUCTION OF BRIDGE B-40-796 WITH RETAINING WALLS R-40-495, R-40-498, R-40-524, R-40-525 AND R-40-527.

A PORTION OF NOISE BARRIER N-40-76 WILL BE MOUNTED ON STRUCTURE B-40-796. THE PLAN DETAILS FOR STRUCTURE B-40-796 SHOW AN ASSUMED POST SPACING AND MOUNTING DETAILS FOR NOISE BARRIER. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ACTUAL MOUNTING DETAILS, NOISE BARRIER POST SPACING AND LOCATION OF EMBEDDED ANCHORAGE ASSEMBLIES WITH THE MANUFACTURER/SUPPLIER OF THE NOISE BARRIER AND THE APPROVED NOISE BARRIER SHOP DRAWINGS.

PLANS, DIMENSIONS, QUANTITIES AND REINFORCEMENT DETAILS ARE BASED ON AN ASSUMED CONCRETE WALL PANEL THICKNESS FOR R-40-495 OF 7½ INCHES. FOR PANEL THICKNESSES OTHER THAN 7½ INCHES, THE CONTRACTOR SHALL VERIFY NORTH ABUTMENT NOTCH REINFORCEMENT BAR DETAILS AND QUANTITIES AND WILL BE RESPONSIBLE FOR ANY QUANTITY VARIATIONS.

William C. Dreher LLS 8/27/15

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| ② | 8/25/15 | PDA RESTRIKE QUANTITY | RAC |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-796

DRAWN BY MJH | PLANS CK'D. RAC

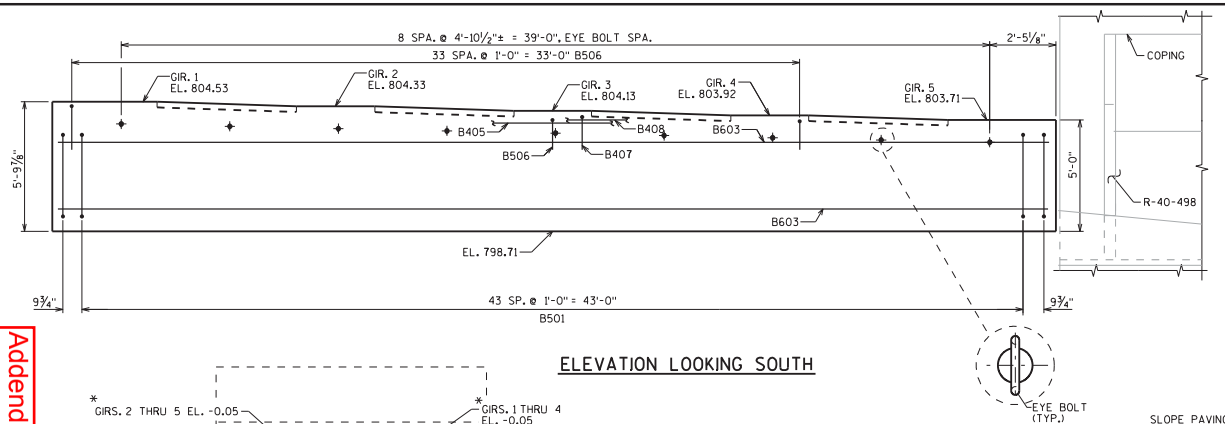
CROSS SECTION & QUANTITIES | SHEET 2 | 2862

Addendum No. 02
ID1060-33-81
Revised Sheet 2862
August 28, 2015

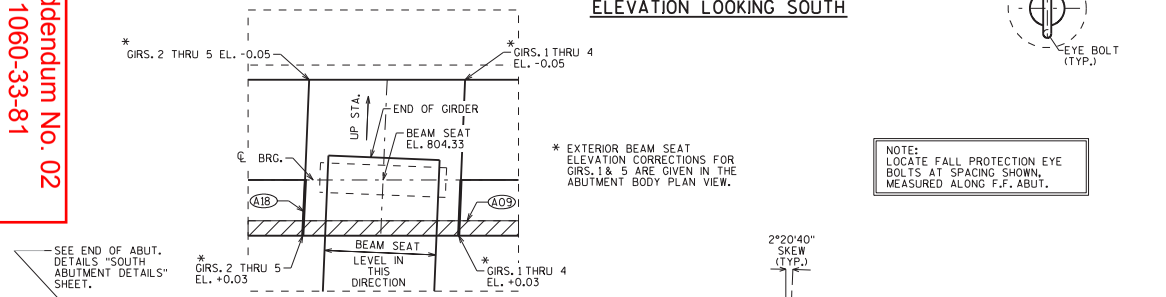
SCALE = 2.5

Addendum No. 02
ID1060-33-81
Revised Sheet 2868
August 28, 2015

| STATE PROJECT NUMBER |
|---|
| 1060-33-81 |



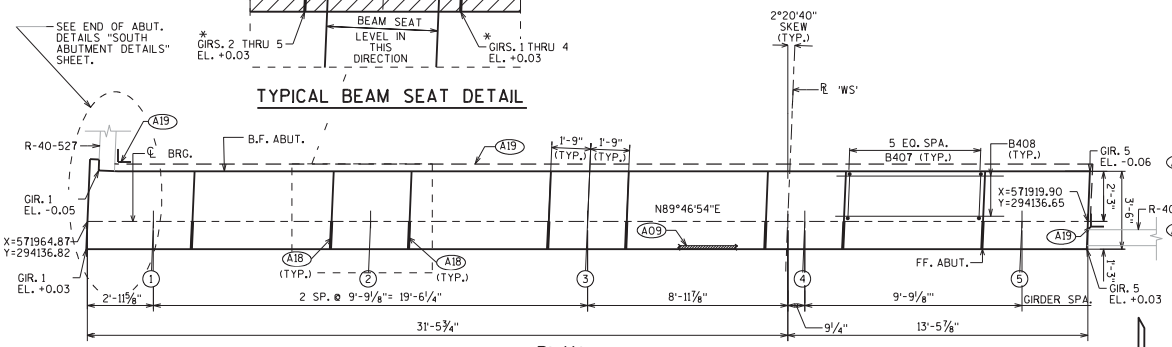

## ELEVATION LOOKING SOUTH



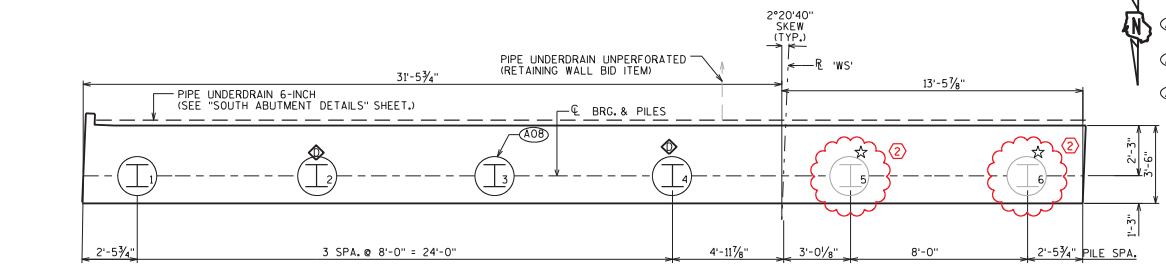

## TYPICAL BEAM SEAT DETAIL

* EXTERIOR BEAM SEAT ELEVATION CORRECTIONS FOR GIRS. 1 & 5 ARE GIVEN IN THE ABUTMENT BODY PLAN VIEW.

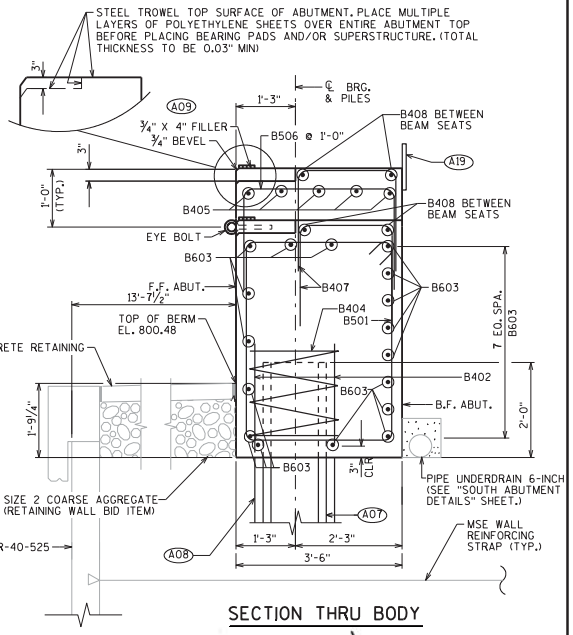
NOTE:
LOCATE FALL PROTECTION EYE BOLTS AT SPACING SHOWN, MEASURED ALONG F.F. ABUT.




## PLAN

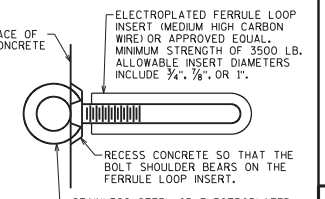



## PILE PLAN




## SECTION THRU BODY

William C. Dreher LLB 8/27/15




## EYE BOLT DETAIL

COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES".

A07 SUPPORT ABUTMENT ON HP 12X53 STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE AS DETERMINED BY THE PDA/CAPWAP ACCEPTANCE METHOD. ESTIMATED PILE LENGTH = 110 FEET.

PILE SLEEVE NOTES

1. COORDINATE PLACEMENT OF PILING SLEEVE FOR BRIDGE B-40-796 WITH WALL R-40-525 CONSTRUCTION.
2. FOUR OF SOUTH ABUTMENT PILING SLEEVES TO BE PAID FOR WITH B-40-796.
3. SLEEVES SHALL BE PLACED FROM LOWER LIMITS OF EXCAVATION FOR MSE REINFORCED ZONE TO BOTTOM OF ABUTMENT.
4. INSTALLATION ELEVATION AT BOTTOM OF MSE REINFORCED ZONE VARIES. SEE "WALL ELEVATIONS" OF R-40-525 PLAN FOR WALL ELEVATIONS.

A09 ¾" X 4" FILLER (OUT TO OUT OF ABUT.)

A18 3/4" CORK FILLER UP VERT. BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.

A19 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

CUT OFF PILING IN EXISTING PIER FOOTING THAT ARE IN THE FOOTPRINT OF THE PROPOSED MSE WALL R-40-525 1'-0" BELOW BOTTOM OF PROPOSED MSE WALL LEVELING PAD.

② DYNAMIC PILE LOAD TESTING. THE PILE RESTRIKES ON THESE PILES SHOULD BE THE ONLY RESTRIKES CONSIDERED FOR THE PILE DRIVING CRITERIA FOR PILES #1 THRU #4.

PILES #5 & #6 ARE HP 12X53 STEEL PILING WITH 21" DIA. CORRUGATED STEEL PILING SLEEVES. THESE PILES WERE INSTALLED IN A PRIOR CONTRACT, BUT WERE NOT DRIVEN TO THE REQUIRED DRIVING RESISTANCE OF 220 TONS. RESTRIKE PILES #5 & #6 TO MEASURE THE REQUIRED DRIVING RESISTANCE AND DRIVE ADDITIONAL PILE LENGTH NEEDED TO MEET THE REQUIRED DRIVING RESISTANCE OF 220 TONS. (SEE R-40-525, CONTRACT ID 1060-33-80.)

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| ② | 8/25/15 | PDA RESTRIKE QUANTITY | RAC |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-796

DRAWN BY MJH PLANS CK'D. RAC

SOUTH ABUTMENT

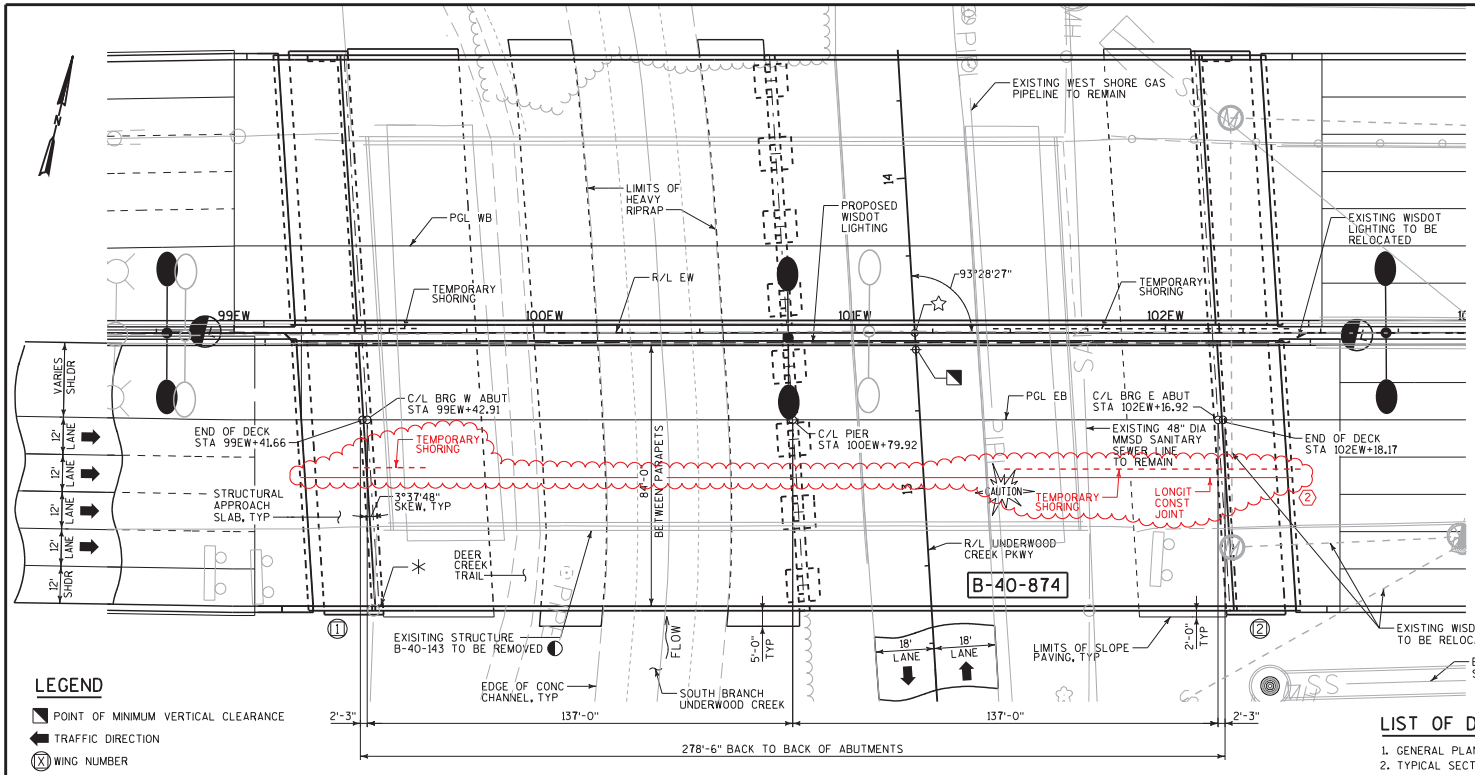
SHEET 8

2868

SCALE =

STATE PROJECT NUMBER

1060-43-81




## DESIGN DATA

LIVE LOAD:
DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: RF = 1.12
OPERATING RATING FACTOR: RF = 1.63
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

MATERIAL PROPERTIES:

| | |
|---|---|
| CONCRETE MASONRY: | |
| SUPERSTRUCTURE (HPC) | f'c = 4,000 psi |
| SUBSTRUCTURE | f'c = 4,000 psi |
| 54W-INCH PRESTRESSED GIRDERS | f'c = 8,000 psi |
| STEEL PILING | fy = 50,000 psi |
| BAR STEEL REINFORCEMENT | fy = 60,000 psi |
| PRESTRESSING STRANDS | ULTIMATE TENSILE STRENGTH = 270,000 psi |

## FOUNDATION DATA

USING THE MODIFIED GATES ACCEPTANCE METHOD

ABUTMENTS AND PIER SHALL BE SUPPORTED ON 16" CAST-IN-PLACE CONCRETE PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 310 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES ACCEPTANCE METHOD.

THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING THE MODIFIED GATES ACCEPTANCE METHOD TO DETERMINE DRIVEN PILE CAPACITY.

ESTIMATED PILE LENGTHS:

| | |
|---|---|
| WEST ABUTMENT: | 45 FEET |
| PIER: | 35 FEET |
| EAST ABUTMENT: | 50 FEET |

WISCONSIN
KARL E. SCHMID
E-30812
MILWAUKEE, WI
PROFESSIONAL ENGINEER
8/24/2015

## LEGEND

- POINT OF MINIMUM VERTICAL CLEARANCE
- TRAFFIC DIRECTION
- (X) WING NUMBER
- THE EXISTING STRUCTURE B-40-143 IS TO BE REMOVED IN ITS ENTIRETY. B-40-143 IS A 3 SPAN STEEL ROLLED BEAM STRUCTURE. PLANS OF THE EXISTING STRUCTURE ARE AVAILABLE FOR REVIEW AT WISDOT SE REGION OFFICE, 141 NW BARSTOW STREET, WAUKESHA, WI, OR THROUGH THE WISDOT STRUCTURES WEBSITE.
- NAME PLATE LOCATION
- STA 101EW+19.25 R/L EW = STA 13+50.10 R/L UNDERWOOD CREEK PARKWAY

## PLAN

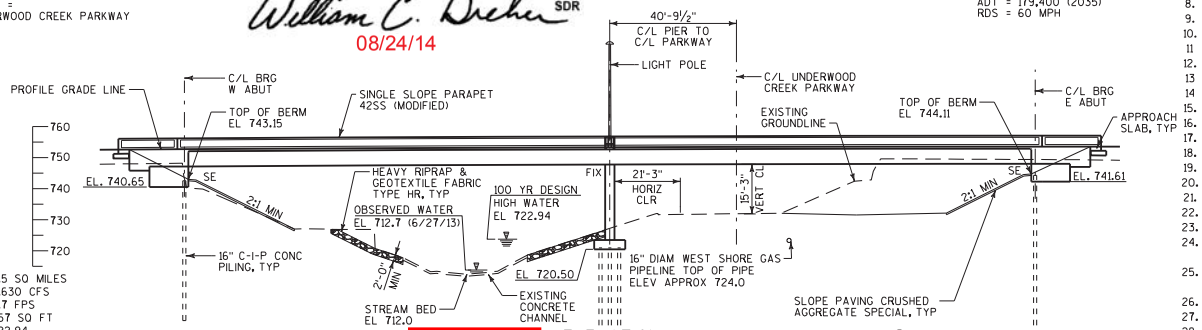
(2 SPAN 54W" PRESTRESSED GIRDERS)

William C. Dreher SDR
08/24/14

## TRAFFIC DATA

IH 94

ADT = 138,400 (2015)
ADT = 179,400 (2035)
RDS = 60 MPH




## ELEVATION

(LOOKING NORTH)

## HYDRAULIC DATA

| | |
|---|---|
| DRAINAGE AREA | 4.5 SQ MILES |
| $Q_{100}$ | 2,630 CFS |
| VELOCITY | 5.7 FPS |
| WATERWAY AREA | 457 SQ FT |
| 100 YR HIGH WATER | 722.94 |
| SCOUR CODE | 5 |
| ROADWAY OVERTOPPING | N/A |

## LIST OF DRAWINGS


1. GENERAL PLAN & ELEVATION
2. TYPICAL SECTIONS
3. QUANTITIES, NOTES & PROFILE GRADE LINE
4. CONSTRUCTION STAGING
5. SUBSURFACE EXPLORATION
6. WEST ABUTMENT
7. WEST ABUTMENT DETAILS
8. EAST ABUTMENT
9. EAST ABUTMENT DETAILS
10. PIER PHASE 1
11. PIER PHASE 2
12. PIER DETAILS (1 OF 2)
13. PIER DETAILS (2 OF 2)
14. 54W" PRESTRESSED GIRDER
15. 54W" PRESTRESSED GIRDER DETAILS
16. STEEL DIAPHRAGM
17. SUPERSTRUCTURE FRAMING PLAN
18. SUPERSTRUCTURE REINFORCEMENT LAYOUT
19. SUPERSTRUCTURE CROSS SECTION
20. SUPERSTRUCTURE DETAILS
21. SUPERSTRUCTURE BILL OF BARS
22. WEST STRUCTURAL APPROACH SLAB
23. EAST STRUCTURAL APPROACH SLAB
24. SINGLE SLOPE PARAPET 42SS MODIFIED (1 OF 2)
25. SINGLE SLOPE PARAPET 42SS MODIFIED (2 OF 2)
26. LIGHT SUPPORT DETAILS
27. LIGHT SUPPORT REINFORCEMENT
28. AESTHETIC DETAILS
29. SLOPE PAVING DETAILS
30. ALTERNATE CONSTRUCTION JOINT DETAIL


STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:
WILLIAM DREHER (608) 266-8489
CONSULTANT:
KARL SCHMID (414) 272-2426

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 2 | 8/25/15 | ADDED LONGITUDINAL CONSTR JOINT | KES |

FORWARD 45

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED _____ _____
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-40-874

IH 94 EB OVER 124TH ST/UNDERWOOD CREEK

| COUNTY | ~~TOWN/CITY/VILLAGE~~ |
|---|---|
| MILWAUKEE | WEST ALLIS |

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

| DESIGNED BY | DESIGN CK'D. | DRAWN BY | PLANS CK'D. |
|---|---|---|---|
| MS | KES | MS | KES |

GENERAL PLAN & ELEVATION

SHEET 1 OF 30

3850

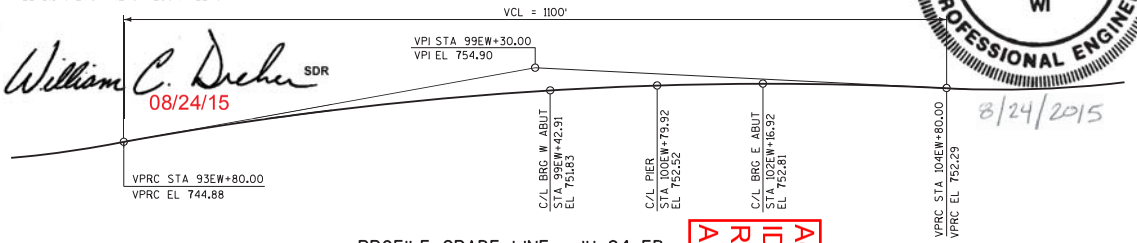
Addendum No. 02
ID1060-43-81
Revised Sheet 3850
August 28, 2015

FILE NAME : W:\Cadd\Final\10602370_BEB\Structs\B-40-874\cds\B874_080101_gp2_add3.dgn
PLOT DATE : 24-AUG-2015 13:28
PLOT BY : mscke
PLOT NAME : B874_080101_gp2_add3
PLOT SCALE : 40:1

## TOTAL ESTIMATED QUANTITIES

| ITEM NO. | BID ITEMS | UNIT | WEST APPROACH SLAB | WEST ABUTMENT | PIER | SUPER | EAST ABUTMENT | EAST APPROACH SLAB | TOTAL |
|---|---|---|---|---|---|---|---|---|---|
| 203.0210.0005 | ABATEMENT OF ASBESTOS CONTAINING MATERIAL STRUCTURE B-40-143 | LS | --- | --- | --- | --- | --- | --- | 1 |
| 203.0600.S.0002 | REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 100EW+80 | LS | --- | --- | --- | --- | --- | --- | 1 |
| 206.1000.0022 | EXCAVATION FOR STRUCTURES BRIDGES B-40-874 | LS | --- | --- | --- | --- | --- | --- | 1 |
| 210.0100 | BACKFILL STRUCTURE | CY | --- | 265 | --- | --- | 265 | --- | 530 |
| 305.0120 | BASE AGGREGATE DENSE 1¼"-INCH | TON | 273 | --- | --- | --- | --- | 273 | 546 |
| 502.0100 | CONCRETE MASONRY BRIDGES | CY | 24 | 75 | 150 | --- | 75 | 24 | 348 |
| 502.3200 | PROTECTIVE SURFACE TREATMENT | SY | 190 | --- | --- | 2,780 | --- | 190 | 3,160 |
| 503.0155 | PRESTRESSED GIRDER TYPE I 54W-INCH | LF | --- | --- | --- | 3,861 | --- | --- | 3,861 |
| 505.0405 | BAR STEEL REINFORCEMENT HS BRIDGES | LB | --- | --- | 3,260 | --- | --- | --- | 3,260 |
| 505.0605 | BAR STEEL REINFORCEMENT HS COATED BRIDGES | LB | 18,280 | 6,650 | 34,070 | 182,990 | 6,650 | 18,280 | 266,920 |
| 505.0800.S | BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES | LB | --- | --- | --- | 2,990 | --- | --- | 2,990 |
| 505.0905 | BAR COUPLERS NO. 5 | EACH | --- | --- | 6 | --- | --- | --- | 6 |
| 505.0909 | BAR COUPLERS NO. 9 | EACH | --- | --- | 15 | --- | --- | --- | 15 |
| 505.0910 | BAR COUPLERS NO. 10 | EACH | --- | --- | 8 | --- | --- | --- | 8 |
| 506.2605 | BEARING PADS ELASTOMERIC NON-LAMINATED | EACH | --- | 14 | --- | 28 | 14 | --- | 56 |
| 506.4000.0017 | STEEL DIAPHRAGMS B-40-874 | EACH | --- | --- | --- | 52 | --- | --- | 52 |
| 511.1200.0018 | TEMPORARY SHORING B-40-874 | SF | --- | 620 | --- | --- | 3,180 | --- | 3,800 (2) |
| 516.0500 | RUBBERIZED MEMBRANE WATERPROOFING | SY | --- | 19 | --- | --- | 19 | --- | 38 |
| 517.1010.S.0106 | CONCRETE STAINING B-40-874 | SF | 100 | 650 | 1,330 | 10,030 | 650 | 100 | 12,860 |
| 550.2168 | PILING CIP CONCRETE 16 X 0.5-INCH | LF | --- | 585 | 1,260 | --- | 650 | --- | 2,495 |
| 606.0300 | RIPRAP HEAVY | CY | --- | 160 | 160 | --- | --- | --- | 320 |
| 612.0206 | PIPE UNDERDRAIN UNPERFORATED 6-INCH | LF | --- | 20 | --- | --- | 20 | --- | 40 |
| 612.0406 | PIPE UNDERDRAIN WRAPPED 6-INCH | LF | --- | 100 | --- | --- | 100 | --- | 200 |
| 645.0120 | GEOTEXTILE FABRIC TYPE HR | SY | --- | 295 | 295 | --- | --- | --- | 590 |
| 652.0125 | CONDUIT RIGID METALLIC 2-INCH | LF | 20 | --- | --- | 6 | --- | 20 | 46 |
| 652.0225 | CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH | LF | --- | --- | --- | 280 | --- | --- | 280 |
| 653.0222 | JUNCTION BOXES 18X12X6-INCH | EACH | --- | --- | --- | 1 | --- | --- | 1 |
| 657.6005.S | ANCHOR ASSEMBLIES LIGHT POLES ON STRUCTURES | EACH | --- | --- | --- | 1 | --- | --- | 1 |
| SPV.0035.4000 | HPC MASONRY SUPERSTRUCTURES | CY | --- | --- | --- | 944 | --- | --- | 944 |
| SPV.0165.4700 | LONGITUDINAL GROOVING BRIDGE DECK | SF | --- | --- | --- | 25,640 | --- | --- | 25,640 |
| SPV.0180.4800 | SLOPE PAVING CRUSHED AGGREGATE SPECIAL | SY | --- | 350 | --- | --- | 270 | --- | 620 |
| | NON-BID ITEMS | | | | | | | | |
| | PREFORMED JOINT FILLER | SIZE | | | | | | | ½" |
| | NON-BITUMINOUS JOINT FILLER | SIZE | | | | | | | ¼" |
| | CORK FILLER | SIZE | | | | | | | 1" |
| | NAME PLATE | EACH | | | | | | | 1 |
| | EXPANDED POLYSTYRENE | SIZE | | | | | | | 1" |

ALL BID ITEMS ARE CATEGORY 2240




PROFILE GRADE LINE - IH 94 EB

William C. Drecher SDR 08/24/15

WISCONSIN KARL E. SCHMID E-30812 MILWAUKEE, WI PROFESSIONAL ENGINEER 8/24/2015

Addendum No. 02
ID1060-43-81
Revised Sheet 3852
August 28 2015

## GENERAL NOTES

G1. DESIGN IS IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 6TH EDITION, 2012 WITH INTERIM REVISIONS, UNLESS OTHERWISE NOTED.

G2. DRAWINGS SHALL NOT BE SCALED.

G3. ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE NOTED.

G4. COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), MILWAUKEE COUNTY ZONE, NAD 83 (2007). ALL STATIONS AND ELEVATIONS ARE IN FEET. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM NAVD 88 (2007).

G5. THE UTILITY INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATIONS AS TO TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE.

G6. NAME PLATE SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "HPC MASONRY STRUCTURES". REFER TO S.D.D "NAME PLATE (STRUCTURES)" FOR NAME PLATE DETAILS.

G7. THE CONTRACTOR MUST COORDINATE THE REMOVAL OF EXISTING STRUCTURE B-40-143 WITH THE CONSTRUCTION OF BRIDGE B-40-874.

G8. PILE SPLICES SHALL BE MADE BY A CERTIFIED WELDER.

G9. STRUCTURE B-40-874 WILL BE CONSTRUCTURED IN TWO PHASES. STRUCTURE PHASES DO NOT CORRESPOND TO ROADWAY STAGES, SEE ROADWAY PLANS FOR COMPLETE STAGING INFORMATION.

G10. THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH SLOPE PAVING MATERIAL TO THE EXTENT SHOWN ON SHEET 1 AND IN THE SLOPE PAVING DETAILS.

G11. THE SLOPE OF THE EMBANKMENT ABOVE THE EXISTING CONCRETE CHANNEL SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE FABRIC TYPE 'HR' TO THE EXTENT SHOWN ON SHEET 1.

G12. ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.

## CONCRETE NOTES

C1. BEVEL EXPOSED EDGES OF CONCRETE ¾", UNLESS NOTED OTHERWISE.

C2. BAR STEEL REINFORCEMENT SHALL HAVE 2" CLEAR COVER, UNLESS SHOWN OTHERWISE.

C3. ALL REINFORCING BARS ARE ENGLISH. THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE. BAR DIMENSIONS ARE OUT-TO-OUT OF BAR.

C4. APPLY PROTECTIVE SURFACE TREATMENT TO THE TOP OF DECK SLAB, TOPS OF THE STRUCTURAL APPROACH SLABS, TOPS AND INSIDE FACES OF PARAPETS ALONG DECK AND STRUCTURAL APPROACH SLABS, AND TO THE PAVING NOTCH SURFACES BEFORE POURING THE STRUCTURAL APPROACH SLABS.

C5. THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE PRESTRESSED GIRDERS DETAILS SHEET.

C6. THE CONCRETE QUANTITY FOR THE ABUTMENTS SHALL BE PAID FOR UNDER BID ITEM "CONCRETE MASONRY BRIDGES".

C7. THE CONCRETE QUANTITY FOR THE DECK SLAB, HAUNCHES, CONCRETE DIAPHRAGMS, AND PARAPETS SHALL BE PAID FOR UNDER BID ITEM "HPC MASONRY STRUCTURES".

C8. THE CONCRETE QUANTITY FOR THE STRUCTURAL APPROACH SLAB FOOTINGS SHALL BE PAID FOR UNDER BID ITEM "CONCRETE MASONRY BRIDGES". THE REMAINING CONCRETE QUANTITY FOR THE STRUCTURAL APPROACH SLABS, INCLUDING PARAPETS, SHALL BE PAID FOR UNDER BID ITEM "HPC MASONRY STRUCTURES".

## BACKFILL NOTES

B1. AT THE BACK FACE OF ABUTMENT, ALL SPACES EXCAVATED AND NOT OCCUPIED BY THE NEW STRUCTURE OR MSE BACKFILL SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

B2. THE GRADATION OF THE STRUCTURE BACKFILL SHALL MEET THE REQUIREMENTS OF SECTION 209.2.2 OF THE STANDARD SPECIFICATIONS FOR GRADE 1 MATERIAL.

## EXCAVATION NOTES

E1. THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMIT OF EXCAVATION FOR STRUCTURES.

## EXIST UNDERWOOD CREEK PARKWAY PAVEMENT ELEVATIONS

| R/L UNDERWOOD CR PARKWAY STA | EXIST CROWN ELEVATION | R/L UNDERWOOD CR PARKWAY STA | EXIST CROWN ELEVATION |
|---|---|---|---|
| 12+25 | 730.21 | 13+75 | 731.54 |
| 12+50 | 730.44 | 14+00 | 731.42 |
| 12+75 | 730.71 | 14+25 | 731.21 |
| 13+00 | 730.93 | 14+50 | 730.81 |
| 13+25 | 731.15 | 14+75 | 730.55 |
| 13+50 | 731.40 | | |

STATE PROJECT NUMBER
1060-43-81

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| (2) | 8/25/15 | QUANTITY REVISION | KES |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-874

DRAWN BY MS | PLANS CK'D. KES

QUANTITIES, NOTES & PROFILE GRADE LINE

SHEET 3 OF 30

3852

FILE NAME : W:\Cadd\Final\10602370_BEB\Structs\B-40-874\cds\B874_080202_qu_add3.dgn
PLOT DATE : 24-AUG-2015 13:28
PLOT BY : mscken
PLOT NAME : B874_080202_qu_add3
PLOT SCALE : 8:1

SCHEDULE OF ITEMS REVISED:

| CONTRACT: | PROJECT(S): | FEDERAL ID(S): |
|---|---|---|
| 20150929001 | 1060-33-81 | WISC 2015473 |
| | 1060-34-82 | N/A |
| | 1060-43-81 | WISC 2015474 |

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| | SECTION 0001 Roadway Items | | | | | |
| 0002 | 108.4400 CPM Progress Schedule | 1.000 EACH | | . | | . |
| 0003 | 201.0105 Clearing | 336.000 STA | | . | | . |
| 0004 | 201.0120 Clearing | 528.000 ID | | . | | . |
| 0005 | 201.0205 Grubbing | 336.000 STA | | . | | . |
| 0006 | 201.0220 Grubbing | 528.000 ID | | . | | . |
| 0007 | 203.0200 Removing Old Structure (station) 0001. 591WS+30 | LUMP | LUMP | | | . |
| 0008 | 203.0200 Removing Old Structure (station) 0002. 175HA+52.38 | LUMP | LUMP | | | . |
| 0009 | 203.0200 Removing Old Structure (station) 0003. 285NS+50 | LUMP | LUMP | | | . |
| 0010 | 203.0200 Removing Old Structure (station) 0004. 600ES+80 | LUMP | LUMP | | | . |

SCHEDULE OF ITEMS REVISED:

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0011 | 203.0200 Removing Old Structure (station) 0005. 589ES+60 | LUMP | LUMP | | | . |
| 0012 | 203.0200 Removing Old Structure (station) 0006. 296NS+00 | LUMP | LUMP | | | . |
| 0013 | 203.0200 Removing Old Structure (station) 0007. 128EW+41 | LUMP | LUMP | | | . |
| 0014 | 203.0200 Removing Old Structure (station) 0008. 127EW+00 | LUMP | LUMP | | | . |
| 0015 | 203.0200 Removing Old Structure (station) 0009. 112EW+25 | LUMP | LUMP | | | . |
| 0016 | 203.0200 Removing Old Structure (station) 0010. 112EW+24 | LUMP | LUMP | | | . |
| 0017 | 203.0200 Removing Old Structure (station) 0011. 229NS+80 | LUMP | LUMP | | | . |
| 0018 | 203.0200 Removing Old Structure (station) 0012. 229NS+90 | LUMP | LUMP | | | . |
| 0019 | 203.0200 Removing Old Structure (station) 0015. 592SE+50 | LUMP | LUMP | | | . |
| 0020 | 203.0200 Removing Old Structure (station) 0016. 545NE+50 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0021 | 203.0200 Removing Old Structure (station) 0017. 591ES+22 | LUMP | LUMP | | | . |
| 0022 | 203.0200 Removing Old Structure (station) 0018. 596ES+71 | LUMP | LUMP | | | . |
| 0023 | 203.0200 Removing Old Structure (station) 0019. 786GE+00 | LUMP | LUMP | | | . |
| 0024 | 203.0200 Removing Old Structure (station) 0020. 16+00 | LUMP | LUMP | | | . |
| 0025 | 203.0200 Removing Old Structure (station) 0021. 236NS+00 | LUMP | LUMP | | | . |
| 0026 | 203.0200 Removing Old Structure (station) 0022. 252NS+65 | LUMP | LUMP | | | . |
| 0027 | 203.0200 Removing Old Structure (station) 0023. 253NS+50 | LUMP | LUMP | | | . |
| 0029 | 203.0200 Removing Old Structure (station) 0025. 155EW+50 | LUMP | LUMP | | | . |
| 0030 | 203.0200 Removing Old Structure (station) 0026. 159EW+00 | LUMP | LUMP | | | . |
| 0031 | 203.0200 Removing Old Structure (station) 0027. 556NE+00 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0032 | 203.0200 Removing Old Structure (station) 0028. 734BA+50 | LUMP | LUMP | | | . |
| 0033 | 203.0200 Removing Old Structure (station) 0029. 345NS+00 | LUMP | LUMP | | | . |
| 0034 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0001. B-40-101 | LUMP | LUMP | | | . |
| 0035 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0002. B-40-0112 | LUMP | LUMP | | | . |
| 0036 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0003. B-40-0126 | LUMP | LUMP | | | . |
| 0037 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0004. B-40-0127 | LUMP | LUMP | | | . |
| 0038 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0005. B-40-0143 | LUMP | LUMP | | | . |
| 0039 | 203.0210.S Abatement of Asbestos Containing Material (structure) 0006. B-40-0144 | LUMP | LUMP | | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0162 | 505.0909 Bar Couplers No. 9 | 44.000 EACH | | . | | . |
| 0163 | 505.0910 Bar Couplers No. 10 | 52.000 EACH | | . | | . |
| 0164 | 506.0605 Structural Steel HS **P** | 20,031,692 LB | | . | | . |
| 0165 | 506.2605 Bearing Pads Elastomeric Non-Laminated **P** | 526.000 EACH | | . | | . |
| 0166 | 506.2610 Bearing Pads Elastomeric Laminated **P** | 116.000 EACH | | . | | . |
| 0167 | 506.3010 Welded Stud Shear Connectors 7/8x5-Inch **P** | 3,768.000 EACH | | . | | . |
| 0168 | 506.3015 Welded Stud Shear Connectors 7/8x6-Inch **P** | 57,888.000 EACH | | . | | . |
| 0169 | 506.3020 Welded Stud Shear Connectors 7/8x7-Inch **P** | 20,650.000 EACH | | . | | . |
| 0170 | 506.3025 Welded Stud Shear Connectors 7/8x8-Inch **P** | 30,186.000 EACH | | . | | . |
| 0171 | 506.3030 Welded Stud Shear Connectors 7/8x9-Inch **P** | 15,180.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0202 | 511.1200 Temporary Shoring (structure) 0016. B-40-851 | 1,890.000 SF | | . | | . |
| 0203 | 511.1200 Temporary Shoring (structure) 0017. B-40-873 | 200.000 SF | | . | | . |
| 0204 | 511.1200 Temporary Shoring (structure) 0018. B-40-874 | 3,800.000 SF | | . | | . |
| 0205 | 511.1200 Temporary Shoring (structure) 0019. R-40-630 | 1,825.000 SF | | . | | . |
| 0206 | 511.1200 Temporary Shoring (structure) 0020. R-40-524 | 640.000 SF | | . | | . |
| 0207 | 511.1200 Temporary Shoring (structure) 0021. R-40-467 | 1,425.000 SF | | . | | . |
| 0208 | 511.1200 Temporary Shoring (structure) 0022. R-40-468 | 440.000 SF | | . | | . |
| 0209 | 511.1200 Temporary Shoring (structure) 0023. R-40-522 | 1,340.000 SF | | . | | . |
| 0210 | 511.1300 Temporary Shoring (location) 0001. 217NS+00 To 228NS+57 | 4,921.000 SF | | . | | . |
| 0211 | 511.1300 Temporary Shoring (location) 0002. 275NS+26 To 275NS+51 | 330.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0425 | 550.1100 Piling Steel HP 10-Inch X 42 Lb | 2,200.000 LF | | . | | . |
| 0426 | 550.1120 Piling Steel HP 12-Inch X 53 Lb | 5,710.000 LF | | . | | . |
| 0427 | 550.1140 Piling Steel HP 14-Inch X 73 Lb | 29,715.000 LF | | . | | . |
| 0428 | 550.2146 Piling CIP Concrete 14 X 0.375-Inch | 8,228.000 LF | | . | | . |
| 0429 | 550.2166 Piling CIP Concrete 16 X 0.375-Inch | 4,770.000 LF | | . | | . |
| 0430 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 15,525.000 LF | | . | | . |
| 0431 | 601.0331 Concrete Curb & Gutter 31-Inch **P** | 12,328.000 LF | | . | | . |
| 0432 | 601.0551 Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type A **P** | 4,951.000 LF | | . | | . |
| 0433 | 601.0553 Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type D **P** | 454.000 LF | | . | | . |
| 0434 | 601.0555 Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type A **P** | 113.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0993 | SPV.0060 Special 3101. Install Traffic Cabinet Base | 1.000 EACH | | . | | . |
| 0994 | SPV.0060 Special 3102. Install Traffic Signal Base | 11.000 EACH | | . | | . |
| 0995 | SPV.0060 Special 3103. Traffic Polymer Concrete Vault 13-In X 24-In X 18-In | 6.000 EACH | | . | | . |
| 0996 | SPV.0060 Special 3104. Traffic Polymer Concrete Vault 17-In X 30-In X 18-In | 5.000 EACH | | . | | . |
| 0997 | SPV.0060 Special 4100. Anchor Assemblies Sign Bridge Structures | 8.000 EACH | | . | | . |
| 0998 | SPV.0060 Special 4105. Anchor Assemblies Noise Barrier Structures | 696.000 EACH | | . | | . |
| 0999 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 95.000 EACH | | . | | . |
| 1000 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 97.000 EACH | | . | | . |
| 1001 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 55.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1210 | SPV.0195 Special 0120. HMA Longitudinal Joint Repair | 40.000 TON | | . | | . |
| 1211 | SPV.0195 Special 0700. Management Of Solid Waste | 3,097.000 TON | | . | | . |
| 1212 | SPV.0195 Special 0801. Soil Drying Agent | 20,300.000 TON | | . | | . |
| 1334 | 630.0171 Seeding Mixture No. 70A | 439.000 LB | | . | | . |
| 1335 | 550.2148 Piling CIP Concrete 14 X 0.50-Inch | 1,395.000 LF | | . | | . |
| 1336 | SPV.0105 Special 0050. Partially Removing Existing Drilled Shafts | LUMP | LUMP | | | . |
| | SECTION 0001 TOTAL | | | | | . |

SECTION 0002 B-40-786 (Option A)
ALT GROUP AA1

| | | | | | | |
|---|---|---|---|---|---|---|
| 1213 | 206.1000 Excavation for Structures Bridges (structure) 0001. B-40-786 | LUMP | LUMP | | | . |
| 1214 | 209.0100 Backfill Granular | 24.000 CY | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1215 | 502.0100 Concrete Masonry Bridges **P** | 812.000 CY | | . | | . |
| 1216 | 505.0405 Bar Steel Reinforcement HS Bridges | 260,690.000 LB | | . | | . |
| 1217 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 190,360.000 LB | | . | | . |
| 1218 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 7.000 EACH | | . | | . |
| 1219 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98.43-Inch | 7.000 EACH | | . | | . |
| 1220 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 28.000 HRS | | . | | . |
| 1221 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 523.000 LF | | . | | . |
| | SECTION 0002 TOTAL | | | | | . |

SECTION 0003 B-40-786 (Option B)
ALT GROUP AA2

| | | | | | | |
|---|---|---|---|---|---|---|
| 1222 | 206.1000 Excavation for Structures Bridges (structure) 0001. B-40-786 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1223 | 209.0100 Backfill<br>Granular | 62.000<br>CY | | . | | . |
| 1224 | 502.0100 Concrete<br>Masonry Bridges **P** | 1,211.000<br>CY | | . | | . |
| 1225 | 505.0405 Bar Steel<br>Reinforcement HS Bridges | 213,150.000<br>LB | | . | | . |
| 1226 | 505.0605 Bar Steel<br>Reinforcement HS Coated<br>Bridges | 208,610.000<br>LB | | . | | . |
| 1227 | 511.1200 Temporary<br>Shoring (structure)<br>0001. B-40-786 | 675.000<br>SF | | . | | . |
| 1228 | 550.2168 Piling CIP<br>Concrete 16 X 0.50-Inch | 5,580.000<br>LF | | . | | . |
| 1229 | SPV.0060 Special 4110.<br>Pile Dynamic Analyzer<br>(PDA) Testing | 6.000<br>EACH | | . | | . |
| 1230 | SPV.0060 Special 4115.<br>Pile Dynamic Analyzer<br>(PDA) Restrikes | 6.000<br>EACH | | . | | . |
| 1231 | SPV.0060 Special 4116.<br>Case Pile Wave Analysis<br>Program (Cap/Wap)<br>Evaluation | 3.000<br>EACH | | . | | . |
| 1232 | SPV.0060 Special 4150.<br>Drilled Foundation Shaft<br>Base Grouting | 4.000<br>EACH | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1233 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98.43-Inch | 4.000 EACH | | . | | . |
| 1234 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 16.000 HRS | | . | | . |
| 1235 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 311.000 LF | | . | | . |
| | SECTION 0003 TOTAL | | | | | . |

SECTION 0004 B-40-853 (Option A)
ALT GROUP BB1

| | | | | | | |
|---|---|---|---|---|---|---|
| 1236 | 206.1000 Excavation for Structures Bridges (structure) 0009. B-40-853 | LUMP | LUMP | | | . |
| 1237 | 209.0100 Backfill Granular | 40.000 CY | | . | | . |
| 1238 | 502.0100 Concrete Masonry Bridges **P** | 428.000 CY | | . | | . |
| 1239 | 505.0405 Bar Steel Reinforcement HS Bridges | 137,850.000 LB | | . | | . |
| 1240 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 100,380.000 LB | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1241 | 505.0911 Bar Couplers No. 11 | 96.000 EACH | | . | | . |
| 1242 | 511.1200 Temporary Shoring (structure) 0011. B-40-853 | 2,740.000 SF | | . | | . |
| 1243 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 5.000 EACH | | . | | . |
| 1244 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98.43-Inch | 5.000 EACH | | . | | . |
| 1245 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 20.000 HRS | | . | | . |
| 1246 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 298.000 LF | | . | | . |
| | SECTION 0004 TOTAL | | | | | . |

SECTION 0005 B-40-853 (Option B)
ALT GROUP BB2

| | | | | | | |
|---|---|---|---|---|---|---|
| 1247 | 206.1000 Excavation for Structures Bridges (structure) 0009. B-40-853 | LUMP | LUMP | | | . |
| 1248 | 209.0100 Backfill Granular | 40.000 CY | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1249 | 502.0100 Concrete Masonry Bridges **P** | 559.000 CY | | . | | . |
| 1250 | 505.0405 Bar Steel Reinforcement HS Bridges | 129,440.000 LB | | . | | . |
| 1251 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 102,550.000 LB | | . | | . |
| 1252 | 505.0911 Bar Couplers No. 11 | 96.000 EACH | | . | | . |
| 1253 | 511.1200 Temporary Shoring (structure) 0011. B-40-853 | 2,740.000 SF | | . | | . |
| 1254 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 1,650.000 LF | | . | | . |
| 1255 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 2.000 EACH | | . | | . |
| 1256 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 2.000 EACH | | . | | . |
| 1257 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 1.000 EACH | | . | | . |
| 1258 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 4.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1259 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 4.000 EACH | | . | | . |
| 1260 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 16.000 HRS | | . | | . |
| 1261 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 236.500 LF | | . | | . |
| | SECTION 0005 TOTAL | | | | | . |
| | SECTION 0006 B-40-854 (Option A) ALT GROUP CC1 | | | | | |
| 1262 | 206.1000 Excavation for Structures Bridges (structure) 0010. B-40-854 | LUMP | LUMP | | | . |
| 1263 | 209.0100 Backfill Granular | 250.000 CY | | . | | . |
| 1264 | 502.0100 Concrete Masonry Bridges **P** | 2,771.000 CY | | . | | . |
| 1265 | 505.0405 Bar Steel Reinforcement HS Bridges | 435,860.000 LB | | . | | . |
| 1266 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 755,100.000 LB | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1267 | 505.0800.S Bar Steel Reinforcement HS Stainless Structures | 1,430.000 LB | | . | | . |
| 1268 | 505.0911 Bar Couplers No. 11 | 144.000 EACH | | . | | . |
| 1269 | 511.1200 Temporary Shoring (structure) 0012. B-40-854 | 3,240.000 SF | | . | | . |
| 1270 | 612.0106 Pipe Underdrain 6-Inch | 40.000 LF | | . | | . |
| 1271 | 612.0206 Pipe Underdrain Unperforated 6-Inch | 40.000 LF | | . | | . |
| 1272 | 645.0111 Geotextile Fabric Type DF Schedule A | 33.000 SY | | . | | . |
| 1273 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 14.000 EACH | | . | | . |
| 1274 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 5.000 EACH | | . | | . |
| 1275 | SPV.0060 Special 4162. Tip Testing Drilled Foundation Shaft 118. 11-Inch | 9.000 EACH | | . | | . |
| 1276 | SPV.0060 Special 4181. Bar Couplers No. 18 | 210.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1277 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 56.000 HRS | | . | | . |
| 1278 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 364.000 LF | | . | | . |
| 1279 | SPV.0090 Special 4440. Drilled Foundation Shaft 118.11-Inch | 525.000 LF | | . | | . |
| 1280 | SPV.0105 Special 4520. Trial Drilled Foundation Shaft 118.11-Inch | LUMP | LUMP | | | . |
| | SECTION 0006 TOTAL | | | | | . |

SECTION 0007 B-40-854 (Option B)
ALT GROUP CC2

| | | | | | | |
|---|---|---|---|---|---|---|
| 1281 | 206.1000 Excavation for Structures Bridges (structure) 0010. B-40-854 | LUMP | LUMP | | | . |
| 1282 | 209.0100 Backfill Granular | 2,190.000 CY | | . | | . |
| 1283 | 502.0100 Concrete Masonry Bridges **P** | 3,938.000 CY | | . | | . |
| 1284 | 505.0405 Bar Steel Reinforcement HS Bridges | 377,110.000 LB | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1285 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 720,240.000 LB | | . | | . |
| 1286 | 505.0800.S Bar Steel Reinforcement HS Stainless Structures | 1,430.000 LB | | . | | . |
| 1287 | 505.0911 Bar Couplers No. 11 | 96.000 EACH | | . | | . |
| 1288 | 511.1200 Temporary Shoring (structure) 0012. B-40-854 | 3,240.000 SF | | . | | . |
| 1289 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 14,870.000 LF | | . | | . |
| 1290 | 612.0106 Pipe Underdrain 6-Inch | 40.000 LF | | . | | . |
| 1291 | 612.0206 Pipe Underdrain Unperforated 6-Inch | 40.000 LF | | . | | . |
| 1292 | 645.0111 Geotextile Fabric Type DF Schedule A | 33.000 SY | | . | | . |
| 1293 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 16.000 EACH | | . | | . |
| 1294 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 16.000 EACH | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1295 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 8.000 EACH | | . | | . |
| 1296 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 6.000 EACH | | . | | . |
| 1297 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 2.000 EACH | | . | | . |
| 1298 | SPV.0060 Special 4162. Tip Testing Drilled Foundation Shaft 118. 11-Inch | 4.000 EACH | | . | | . |
| 1299 | SPV.0060 Special 4181. Bar Couplers No. 18 | 70.000 EACH | | . | | . |
| 1300 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 24.000 HRS | | . | | . |
| 1301 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 207.000 LF | | . | | . |
| 1302 | SPV.0090 Special 4440. Drilled Foundation Shaft 118.11-Inch | 227.000 LF | | . | | . |
| 1303 | SPV.0105 Special 4520. Trial Drilled Foundation Shaft 118.11-Inch | LUMP | LUMP | | | . |
| | SECTION 0007 TOTAL | | | | | . |

SECTION 0008 B-40-856 (Option A)
ALT GROUP DD1

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1304 | 206.1000 Excavation for Structures Bridges (structure) 0011. B-40-856 | LUMP | LUMP | | | . |
| 1305 | 209.0100 Backfill Granular | 73.000 CY | | . | | . |
| 1306 | 502.0100 Concrete Masonry Bridges **P** | 2,828.000 CY | | . | | . |
| 1307 | 505.0405 Bar Steel Reinforcement HS Bridges | 325,210.000 LB | | . | | . |
| 1308 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 675,740.000 LB | | . | | . |
| 1309 | 511.1200 Temporary Shoring (structure) 0003. B-40-856 | 2,445.000 SF | | . | | . |
| 1310 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 12.000 EACH | | . | | . |
| 1311 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 2.000 EACH | | . | | . |
| 1312 | SPV.0060 Special 4162. Tip Testing Drilled Foundation Shaft 118. 11-Inch | 10.000 EACH | | . | | . |
| 1313 | SPV.0060 Special 4181. Bar Couplers No. 18 | 150.000 EACH | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1314 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 48.000 HRS | | . | | . |
| 1315 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 115.000 LF | | . | | . |
| 1316 | SPV.0090 Special 4440. Drilled Foundation Shaft 118.11-Inch | 598.000 LF | | . | | . |
| | SECTION 0008 TOTAL | | | | | . |

SECTION 0009 B-40-856 (Option B)
ALT GROUP DD2

| | | | | | | |
|---|---|---|---|---|---|---|
| 1317 | 206.1000 Excavation for Structures Bridges (structure) 0011. B-40-856 | LUMP | LUMP | | | . |
| 1318 | 209.0100 Backfill Granular | 133.000 CY | | . | | . |
| 1319 | 502.0100 Concrete Masonry Bridges **P** | 3,502.000 CY | | . | | . |
| 1320 | 505.0405 Bar Steel Reinforcement HS Bridges | 319,380.000 LB | | . | | . |
| 1321 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 649,700.000 LB | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1322 | 511.1200 Temporary Shoring (structure) 0003. B-40-856 | 2,445.000 SF | | . | | . |
| 1323 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 7,980.000 LF | | . | | . |
| 1324 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 10.000 EACH | | . | | . |
| 1325 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 10.000 EACH | | . | | . |
| 1326 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 5.000 EACH | | . | | . |
| 1327 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 7.000 EACH | | . | | . |
| 1328 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 1.000 EACH | | . | | . |
| 1329 | SPV.0060 Special 4162. Tip Testing Drilled Foundation Shaft 118. 11-Inch | 6.000 EACH | | . | | . |
| 1330 | SPV.0060 Special 4181. Bar Couplers No. 18 | 90.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1331 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 28.000 HRS | | . | | . |
| 1332 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 65.000 LF | | . | | . |
| 1333 | SPV.0090 Special 4440. Drilled Foundation Shaft 118.11-Inch | 355.000 LF | | . | | . |
| | SECTION 0009 TOTAL | | | | | . |
| | TOTAL BID | | | | | . |

# Wisconsin Department of Transportation

**Division of Transportation Systems Development**
Bureau of Project Development
4802 Sheboygan Avenue, Rm 601
P O Box 7916
Madison, WI 53707-7916

Telephone: (608) 266-1631
Facsimile (FAX): (608) 266-8459

September 14, 2015

## NOTICE TO ALL CONTRACTORS:

**Proposal #01: 1060-33-81, WISC 2015 473**
**Zoo IC – Zoo Interchange Phase 2**
**Lincoln – Bluemound, 121st to 70th**
**USH 45**
**Milwaukee County**

**1060-34-82**
**Zoo IC – IH 894 NB Auxiliary Lane**
**Oklahoma Ave to National Ave**
**IH 894**
**Milwaukee County**

**1060-43-81, WISC 2015 474**
**East West Freeway**
**Underwood Cr Prkwy & 121st St Brdgs**
**IH 94**
**Milwaukee County**

## Letting of September 29, 2015

This is Addendum No. 03, which provides for the following:

**Special Provisions**

| **Revised** Special Provisions | |
|---|---|
| Article No. | Description |
| 4 | Prosecution and Progress |
| 94 | Noise Barriers Double-Sided Sound Absorptive N-40-61, Item 531.0300.S.0001; N-40-62, Item 531.0300.S.0002; N-40-63, Item 531.0300.S.0003; N-40-64, Item 531.0300.S.0004; N-40-66, Item 531.0300.S.0006; N-40-67, Item 531.0300.S.0007; N-40-76, Item 531.0300.S.0008; N-40-77, Item 531.0300.S.0009; N-40-78, Item 531.0300.S.0010; N-40-79, Item 531.0300.S.0011 |
| 137 | EBS Excavation, Item SPV.0035.0100 |
| 138 | EBS Backfill, Item SPV.0035.0101 |
| 355 | Lining 96-Inch Reinforced Concrete Storm Sewer Pipe, Item SPV.0090.8090 |
| 389 | Concrete Staining Previously Constructed Structure, Item SPV.0165.4785 |

| | |
|---|---|
| 390 | Concrete Staining Multi-Color Previously Constructed Structure, Item SPV.0165.4786 |
| 398 | Topsoil Special, Item SPV.0180.0200 |

| **Added** Special Provisions | |
|---|---|
| Article No. | Description |
| 407 | Seeding Establishment, Item SPV.0105.0055 |
| 408 | Seeding Water, Item SPV.0120.0001 |

**Schedule of Items**

| **Revised** Bid Item Quantities | | | | | |
|---|---|---|---|---|---|
| Bid Item | Item Description | Unit | Old Quantity | Revised Quantity | Proposal Total |
| 503.0146 | Prestressed Girder Type I 45W-Inch **P** | LF | 0 | 404 | 4182 |
| 503.0155 | Prestressed Girder Type I 54W-Inch **P** | LF | 404 | 0 | 28673 |
| 511.1200.0003 | Temporary Shoring B-40-856 | SF | 2445 | 2955 | 2955 |
| 511.1300.0001 | Temporary Shoring 217NS+00 to 228NS+57 | SF | 4921 | 8114 | 8114 |
| 511.1300.0003 | Temporary Shoring 230NS+97 to 238NS+00 | SF | 3360 | 5459 | 5459 |
| 511.1300.0004 | Temporary Shoring 93EW+60 to 99EW+20 | SF | 1357 | 2792 | 2792 |
| 511.1300.0005 | Temporary Shoring 102EW+37 to 107EW+30 | SF | 1362 | 2034 | 2034 |
| 511.1300.0006 | Temporary Shoring 110EW+20 to 111EW+25 | SF | 175 | 478 | 478 |
| 511.1300.0010 | Temporary Shoring 169EW+85 to 180EW+35 | SF | 5593 | 11490 | 11490 |
| 652.0235 | Conduit Rigid Nonmetallic Schedule 40 3-Inch | LF | 5978 | 5733 | 50158 |
| 652.0615 | Conduit Special 3-Inch | LF | 1717 | 1460 | 1755 |
| 653.0140 | Pull Boxes Steel 24x42-Inch | EACH | 95 | 94 | 183 |
| 655.0625 | Electrical Wire Lighting 6 AWG | LF | 287453 | 286489 | 292924 |
| 655.0635 | Electrical Wire Lighting 2 AWG | LF | 1664 | 448 | 10153 |
| 655.0645 | Electrical Wire Lighting 1/0 AWG | LF | 9064 | 6840 | 6840 |
| SPV.0060.1010 | Lamp Disposal High Intensity Discharge | EACH | 290 | 325 | 325 |
| SPV.0060.1035 | Wood Pole Lighting 60-Foot | EACH | 104 | 76 | 76 |
| SPV.0060.1036 | Poles Wood 60-Foot | EACH | 24 | 21 | 21 |
| SPV.0060.1070 | Luminaires Floodlight 1000W HPS | EACH | 94 | 70 | 70 |
| SPV.0060.1071 | Luminaires Floodlight 400W HPS | EACH | 67 | 58 | 58 |
| SPV.0090.1006 | Cable Aerial Aluminum 4 AWG Quadruplex | LF | 9366 | 4432 | 4432 |
| SPV.0165.4710 | Wall Concrete Panel Mechanically Stabilized Earth LRFD/QMP **P** | SF | 213181 | 212283 | 212283 |

| **Added** Bid Item Quantities | | | | | |
|---|---|---|---|---|---|
| Bid Item | Item Description | Unit | Old Quantity | Revised Quantity | Proposal Total |
| SPV.0105.0055 | Seeding Establishment | LS | 0 | 1 | 1 |
| SPV.0120.0001 | Seeding Water | MGAL | 0 | 16627 | 16627 |

**Plan Sheets**

| **Revised** Plan Sheets | |
|---|---|
| Plan Sheet | Plan Sheet Title (brief description of changes to sheet) |
| 4 | Revised fill factor general note |
| 410 | Revised conduit removal limits |
| 737 | Revised bedding note |
| 1061-1064 | Revised west leg lighting limits |
| 1081-1084 | Revised west leg lighting limits |
| 1661-1667 | Revised fill factor |
| 1737 | Revised temporary shoring quantities |
| 1812-1815 | Added Seeding Water and Seeding Establishment items |
| 1958-1964 | Revised west leg lighting quantities |
| 1968-1969 | Revised west leg lighting quantities |
| 2671 | Revised conduit removal notes |
| 3452 | Revised temporary shoring quantity |
| 3553 | Revised girder type quantity |
| 3934 | Revised staining quantity, added modified concrete surface area quantity (for information only) |
| 4141 | Revised MSE wall quantity |
| 4336 | Revised temporary shoring note |
| 4337 | Revised MSE wall quantity |
| 4626-4843 | Revised fill factor |

| **Added** Plan Sheets | |
|---|---|
| Plan Sheet | Plan Sheet Title (brief description of why sheet was added) |
| 1958A | Revised west leg lighting quantities |

**Other**

**ASP-5 has been revised and is effective with the September 29, 2015 letting.**

The responsibility for notifying potential subcontractors and suppliers of these changes remains with the prime contractor.

Sincerely,

*Mike Coleman*

Proposal Development Specialist
Proposal Management Section

**ADDENDUM NO. 03**

**1060-33-81**

**September 14, 2015**

**ASP-5**

*Replace ASP-5 with following:*

**Effective with September 29, 2015 Letting** **ASP-5**

**ADDITIONAL SPECIAL PROVISIONS 5**

**Fuel Cost Adjustment**

**A Description**

Fuel Cost Adjustments will be applied to partial and final payments for work items categorized in Section B as a payment to the contractor or a credit to the department. ASP-5 shall not apply to any force account work.

**B Categories of Work Items**

The following items and Fuel Usage Factors shall be used to determine Fuel Cost Adjustments:

| (1) Earthwork. | | Unit | Gal. Fuel Per Unit |
|---|---|---|---|
| 205.0100 | Excavation Common | CY | 0.23 |
| 205.0200 | Excavation Rock | CY | 0.39 |
| 205.0400 | Excavation Marsh | CY | 0.29 |
| 208.0100 | Borrow | CY | 0.23 |
| 208.1100 | Select Borrow | CY | 0.23 |
| 209.0100 | Backfill Granular | CY | 0.23 |
| 350.0102 | Subbase | CY | 0.28 |
| 350.0104 | Subbase | Ton | 0.14 |
| 350.0115 | Subbase 6-Inch | SY | 0.05 |
| 350.0120 | Subbase 7-Inch | SY | 0.05 |
| 350.0125 | Subbase 8-Inch | SY | 0.06 |
| 350.0130 | Subbase 9-Inch | SY | 0.07 |
| 350.0135 | Subbase 10-Inch | SY | 0.08 |
| 350.0140 | Subbase 11-Inch | SY | 0.09 |
| 350.0145 | Subbase 12-Inch | SY | 0.09 |
| SPV.0035.0100 | EBS Excavation | CY | 0.23 |

**C Fuel Index**

A Current Fuel Index (CFI) in dollars per gallon will be established by the Department of Transportation for each month. The CFI will be the price of No. 2 fuel oil, as reported in U.S. Oil Week, using the first issue dated that month. The CFI will be the average of prices quoted for Green Bay, Madison, Milwaukee and Minneapolis.

The base Fuel Index (BFI) for this contract is $1.90 per gallon.

**D Computing the Fuel Cost Adjustment**

The engineer will compute the ratio CFI/BFI each month. If the ratio falls between 0.85 and 1.15, inclusive, no fuel adjustment will be made for that month. If the ratio is less than 0.85 a credit to the department will be computed. If the ratio is greater than 1.15 additional payment to the contractor will be computed. Credit or additional payment will be computed as follows:

(1) The engineer will estimate the quantity of work done in that month under each of the contract items categorized in Section B.

(2) The engineer will compute the gallons of fuel used in that month for each of the contract items categorized in Section B by applying the unit fuel usage factors shown in Section B.

(3) The engineer will summarize the total gallons (Q) of fuel used in that month for the items categorized in Section B.

(4) The engineer will determine the Fuel Cost Adjustment credit or payment from the following formula:

$$FA = \left( \frac{CFI}{BFI} - 1 \right) x\ Q\ x\ BFI$$

(plus is payment to contractor; minus is credit to the department)

| | | | |
|---|---|---|---|
| Where | FA | = | Fuel Cost Adjustment (plus or minus) |
| | CFI | = | Current Fuel Index |
| | BFI | = | Base Fuel Index |
| | Q | = | Monthly total gallons of fuel |

**E Payment**

A Fuel Cost Adjustment credit to the department will be deducted as a dollar amount each month from any sums due to the contractor. A Fuel Cost Adjustment payment to the contractor will be made as a dollar amount each month.

Upon completion of the work under the contract, any difference between the estimated quantities and the final quantities will be determined. An average CFI, calculated by averaging the CFI for all months that fuel cost adjustment was applied, will be applied to the quantity differences. The average CFI shall be applied in accordance with the procedure set forth in Section D.

**Special Provisions**

**4. Prosecution and Progress**

*Replace the fifth paragraph under section titled* **Freeway Lane Restrictions** *with the following:*

Northbound IH 894/USH 45 between the south end of the project and Schlinger Avenue may be reduced to two through lanes to facilitate the staged construction of Structure B-40-883 and roadway construction. This closure will only be allowed during Stages 2, 3 and 4 as shown in the plans, shall not take place prior to April 16, 2016 and shall be removed by November 1, 2016.

**94. Noise Barriers Double-Sided Sound Absorptive N-40-61, Item 531.0300.S.0001; N-40-62, Item 531.0300.S.0002; N-40-63, Item 531.0300.S.0003; N-40-64, Item 531.0300.S.0004; N-40-66, Item 531.0300.S.0006; N-40-67, Item 531.0300.S.0007; N-40-76, Item 531.0300.S.0008; N-40-77, Item 531.0300.S.0009; N-40-78, Item 531.0300.S.0010; N-40-79, Item 531.0300.S.0011**

*Replace the section titled* **E Payment** *with the following:*

**E Payment**
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| 531.0300.S.0001 | Noise Barriers Double-Sided Sound Absorptive N-40-61 | SF |
| 531.0300.S.0002 | Noise Barriers Double-Sided Sound Absorptive N-40-62 | SF |
| 531.0300.S.0003 | Noise Barriers Double-Sided Sound Absorptive N-40-63 | SF |
| 531.0300.S.0004 | Noise Barriers Double-Sided Sound Absorptive N-40-64 | SF |
| 531.0300.S.0006 | Noise Barriers Double-Sided Sound Absorptive N-40-66 | SF |
| 531.0300.S.0007 | Noise Barriers Double-Sided Sound Absorptive N-40-67 | SF |
| 531.0300.S.0008 | Noise Barriers Double-Sided Sound Absorptive N-40-76 | SF |
| 531.0300.S.0009 | Noise Barriers Double-Sided Sound Absorptive N-40-77 | SF |
| 531.0300.S.0010 | Noise Barriers Double-Sided Sound Absorptive N-40-78 | SF |
| 531.0300.S.0011 | Noise Barriers Double-Sided Sound Absorptive N-40-79 | SF |

Payment is full compensation for providing noise barrier including coloring and aesthetic treatment on panels; for preparing the design drawings, calculations and handling plan; for furnishing and delivering sample and test panels; for testing noise barrier materials; for excavation, preparing the site, constructing foundations, erecting posts and panels, and disposing of waste materials. The department will pay up to 80 percent of the contract value of the work completed until meeting all of the requirements of the contract specification, including testing. The department will make final payments upon acceptance of all work required.

**137. EBS Excavation, Item SPV.0035.0100**

*Replace the section titled* **C Construction** *with the following:*

**C Construction**
Perform work in accordance to the pertinent corrective action efforts from approved QMP Subgrade Quality Control Plan.

**C.1 Subgrade Transition**
Conform to requirements of QMP Subgrade, for identification and acceptance of EBS Excavation.

If the engineer requests, provide loaded trucks and run the subgrade as the engineer directs to confirm yielding areas.

**C.2 Temporary Drainage**

During construction, slope and drain the excavation bottoms to prevent water accumulation. If it is necessary in the prosecution of the work to interrupt existing surface drainage, sewers, or under drainage, provide temporary drainage until completing permanent drainage work.

**138. EBS Backfill, Item SPV.0035.0101**

*Replace the section titled* **A Description** *with the following:*

**A Description**
This special provision supplements work as described under standard spec 205.3.4 and when select crushed material is preferred backfill.

**355. Lining 96-Inch Reinforced Concrete Storm Sewer Pipe, Item SPV.0090.8090**

*Replace the section titled* **B.1 Roughness and Final inside Pipe Diameter** *with the following:*

**B.1 Roughness and Final inside Pipe Diameter**
Provide paved liner material not exceeding the manning's coefficient of roughness of 0.013. The final inside pipe diameter measured after concrete paved insert or liner must be a minimum of 88.5-inches.

**389. Concrete Staining Previously Constructed Structure, Item SPV.0165.4785**

*Replace the first paragraph under the section titled* **C.2 Modified Concrete Surface Finish** *with the following:*

Provide a modified surface finish to all cast in place concrete surfaces by filling all air holes as the engineer directs using mortar as defined in B.2. Before applying the modified surface finish, saturate the concrete surface with water and fill all tie rod holes and large cavities, and remove or correct all fins and irregularities as specified in 502.3.7.1 and 502.3.7.2.

**390. Concrete Staining Multi-Color Previously Constructed Structure, Item SPV.0165.4786**

*Replace the first paragraph under the section titled* **C.2 Modified Concrete Surface Finish** *with the following:*

Provide a modified surface finish to all cast in place concrete surfaces by filling all air holes as the engineer directs using mortar as defined in B.2. Before applying the modified surface finish, saturate the concrete surface with water and fill all tie rod holes and large cavities, and remove or correct all fins and irregularities as specified in 502.3.7.1 and 502.3.7.2.

**398. Topsoil Special, Item SPV.0180.0200**

*Replace the section titled* **C.3 Placing Topsoil** *with the following:*

**C.3 Placing Topsoil**
After preparing and finishing the areas designated for topsoil to the required lines, grades, slopes and cross section, place and spread the topsoil to a uniform depth as the plans show or the contract requires. If no depth is shown, place and spread the topsoil to a minimum depth of 4 inches in rural areas and a minimum depth of 6 inches in urban areas, or as the engineer designates.

Break down all clods and lumps using appropriate equipment to provide a uniformly textured soil.

Where using either sod or seed mixture 40 ensure that, for the upper 2 inches, 100 percent of the material passes a one-inch sieve and at least 90 percent passes the No. 10 sieve.

Where subsoils have been compacted by equipment operations or locations along old road beds; or when plans call for using seed mixture 70, 70A, 75, or 80, or seed mixtures containing Forbes species; perform subsoiling prior to placing topsoil. Perform subsoil operations to break up and turn over surface soils to a minimum depth of 12 inches. Perform subsoiling in one direction, perpendicular to the flow of water and along slopes flatter than 1:2 (V:H). Create channels no greater than 3 ft apart.

Remove rocks, twigs, foreign material, and clods that cannot be broken down. Dress the entire surface to present a uniform appearance. The engineer will not require rolling.

If light sandy soils are covered with heavier clay bearing loam topsoil, then mix or blend the 2 types of soils to a more or less homogeneous mixture by using the appropriate equipment.

*Replace the section titled* **E Payment** *with the following:*

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid items:

| ITEM NUMBER | DESCRIPTION | UNI |
|---|---|---|
| SPV.0180.0200 | Topsoil Special | SY |

Payment for Topsoil is full compensation for removing, stockpiling, reclaiming, providing, processing, excavating, loading, hauling, and placing this material; for subsoiling; and for undercutting excavations, or underfilling embankments necessary to receive this material. The department will make no allowance, adjustment, or measurement for payment under the Excavation bid items for undercutting cut sections, underfilling embankments, or deductions for materials obtained from areas of cut sections.

If an area is damaged by erosion after partial acceptance, the department will pay for restoring topsoil in these areas at a unit price determined by multiplying the contract unit price bid for Topsoil multiplied by 3, the department will pay for restoration under the Restoration Post Acceptance Topsoil administrative item.

The department will not pay for removing topsoil from outside the roadway foundation in embankment areas unless that material is necessary to cover the slopes.
SEF Rev.14_0922

## 407. Seeding Establishment, Item SPV.0105.0055

**A Description**

This work includes providing proper care of all newly seeded areas for a period of two growing seasons.

**B Materials**

**C Construction**

Proper care of seeded areas consists of weeding, fertilizing seed mixture areas, repair of eroded areas, repair of mulch or erosion mats, and mowing grass once it reaches a height of 6-7 inches.

**C.1 Weeding**

Weeding consists of physically or chemically removing large sized (over 12” tall) weeds throughout the first growing season. Chemical removal shall consist of spot applications of a Glyphosate with a surfactant during the first year of maintenance.

Confine the overspray to an area less than 2 feet in diameter. Mark the overspray area and return in one week to reseed and water. Seed mix and application rate shall be the same as the original seeding.

Comply with all federal and state laws regarding safety, handling, applying and disposal of materials and/or containers.

**C.2 Fertilizing**
During the spring of the second season apply a liquid fertilizer-herbicide combination (weed and feed) when grass and weeds are actively growing to seed mixture areas. Apply when temperatures are between 55 and 75 degrees. Do not apply when wind speeds are greater than 5 mph to avoid overspray onto adjoining properties.

Place notice markers in the treated turf areas indicating that a fertilizer-herbicide has been applied and the date applied.

**C.3 Maintenance**
Inspect seeded areas after periods of rain. Report any erosion areas to the engineer and make the necessary clean-up of deposited soil (due the erosion), fill eroded areas to match surrounding grades, seed and mulch repaired areas.

Perform maintenance site visit requirements to the satisfaction of the engineer a minimum of once every two weeks for the months of May through October.

Notify the engineer at least two days before making a maintenance site visit.

Submit a written report to the engineer after each maintenance site visit. Ensure that the report documents the work performed during each visit; the number and location of bare spots, the amount of seed and mulch applied; and other information the engineer deems appropriate.

Mow grass once it has reached a height of 6-7 inches. Mow to a height of 4 inches. Repeat mowing when grass for the duration of the maintenance period.

Grass seeding in healthy condition at the end of the second growing season must cover 95% or greater, of the total seeded area.

One month prior to the end of the applicable turf seeding establishment period, the engineer will make a final inspection and accept or reject seeded areas not meeting coverage requirements.

Payment shall be made after contractor addresses all seeding and maintenance issues to the satisfaction of the engineer.

**D Measurement**
The department will measure Seeding Establishment by the lump sum acceptably completed.

**E Payment**
The department will pay for the measured quantity at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0105.0055 | Seeding Establishment | LS |

Payment is full compensation for weeding, both physically and chemically; for furnishing, storing, transporting, mixing and applying weeding chemicals and fertilizer;
for fertilizing; for inspections and reports; for erosion clean up and repair and for mowing.

## 408. Seeding Water, Item SPV.0120.0001

### A Description
This section describes furnishing and applying water to areas seeded using seed mixture No. 70A and seed mixture No. 80 on the shoulders, slopes, ditches, or at other designated locations as shown in the plans, the contract specifies or as the engineer directs and as hereinafter provided.

### B Materials
When watering seeded areas, use clean water, free of impurities or substances that might injure the seed or seedlings.

### C Construction
Furnish and apply water to seeded areas. After seeding and mulching, moisten the seeded areas thoroughly by sprinkling with water.

Water seeded areas sufficiently to maintain the soil moisture at a pre-determined level set by the engineer. Moisture level shall be measured by an electronic soil moisture gauge. Contractor to provide their own moisture gauge.

Engineer's and contractor's moisture gauges shall be calibrated with each other. Contractor shall provide a chart of the two gauge's corresponding numbers after calibration.

Keep all seeded areas thoroughly moist by watering or sprinkling if rainfall is not sufficient to achieve seed germination. Apply water in a manner to preclude washing or erosion.

### D Measurement
The department will measure Seeding Water by volume in gallons acceptably completed. The department will determine volume by engineer-approved meters or from tanks of known capacity.

### E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0120.0001 | Seeding Water | MGAL |

Payment for Seeding Water is full compensation for providing, hauling, and applying the water; for calibrating the moisture gauges; and for moisture testing.

**Schedule of Items**
Attached, dated September 14, 2015, are the revised Schedule of Items Pages 16, 17, 22, 23, 73, 74, 76, 97-99, 117, 125, and 128–142.

**Plan Sheets**
The following 8½ x 11-inch sheets are attached and made part of the plans for this proposal:
Revised: 4, 410, 737,1061-1064, 1081-1084, 1661-1667, 1737, 1812-1815, 1958-1964, 1968-1969, 2671, 3452, 3553, 3934, 4141, 4336-4337, and 4626-4843
Added: 1958A

END OF ADDENDUM

## GENERAL NOTES

NO TREES OR SHRUBS SHALL BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.

ANY REINFORCEMENT LOCATED IN EXISTING CONCRETE PAVEMENT SHALL BE CONSIDERED INCIDENTAL TO THE REMOVING PAVEMENT ITEM, AND NO ADDITIONAL COMPENSATION WILL BE GRANTED.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY LOCAL MUNICIPAL UTILITY WHICH IS NOT A MEMBER OF THE DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

WHEN THE QUANTITY OF HMA PAVEMENT OR BASE AGGREGATE IS MEASURED FOR PAYMENT BY THE TON, THE DEPTH OR THICKNESS OF THE LAYER SHOWN ON THE PLAN IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

THE QUANTITY OF TOPSOIL IS COMPUTED FROM MEASUREMENTS BETWEEN THE SUBGRADE SHOULDER POINTS AND THE SLOPE INTERCEPTS AS SHOWN ON THE CROSS SECTIONS PLUS 5 FEET FOR ROUNDING.

CURB HEIGHTS AT THE END OF CURB AND GUTTER SHALL BE TAPERED FROM 0 TO 4 INCHES OR 0 TO 6 INCHES IN 6 FEET.

CURB AND GUTTER GRADES ARE GIVEN TO THE FLANGE OF CURB AND GUTTER OR THEORETICAL FLANGE POINT OF INTEGRAL CURB AND GUTTER. CURB AND GUTTER RADII ARE MEASURED TO THE FLANGE OF CURB AND GUTTER OR THEORETICAL FLANGE POINT OF INTEGRAL CURB AND GUTTER.

EXISTING DRIVEWAYS AND FIELD ENTRANCES SHALL BE RESTORED IN KIND AS DIRECTED BY THE ENGINEER IN THE FIELD AND AT THE LOCATION DETERMINED BY THE ENGINEER.

PROVIDE A TYPICAL SIDEWALK CROSS SLOPE OF 1.5% WITH A CONSTRUCTION TOLERANCE OF +/- 0.5%.

BROKEN CONCRETE CONTAINING RE-BAR SHALL NOT BE USED AS RIPRAP MEDIUM.

CROSS SECTIONS SHOWN INCLUDE THE THICKNESS OF TOPSOIL WHERE REQUIRED. TOPSOIL SHALL BE REPLACED WITH 6-INCH TYPICAL DEPTH THROUGHOUT THE PROJECT.

A SAWED JOINT IS REQUIRED WHERE NEW HMA PAVEMENT MEETS EXISTING HMA PAVEMENT.

REMOVAL OF EROSION CONTROL DEVICES IS INCLUDED IN THE COST OF THEIR RESPECTIVE BID ITEMS.

RE-TOPSOIL OF GRADED AREAS, AS DESIGNATED BY THE ENGINEER, IMMEDIATELY AFTER GRADING IS COMPLETED WITHIN THOSE AREAS. SEED, FERTILIZE, AND EROSION MAT TOP-SOILED AREAS, AS DESIGNATED BY THE ENGINEER, WITHIN FIVE (5) CALENDAR DAYS AFTER PLACEMENT OF TOPSOIL. IF GRADED AREAS ARE LEFT EXPOSED FOR MORE THAN (14) CALENDAR DAYS, SEED THOSE AREAS WITH TEMPORARY SEED.

STOCKPILE EXCESS MATERIAL OR SPOILS ON UPLAND AREAS AWAY FROM WETLANDS, FLOODPLAINS AND WATERWAYS. STOCKPILED SOIL SHALL BE PROTECTED AGAINST EROSION. IF STOCKPILED MATERIAL IS LEFT FOR MORE THAN FOURTEEN (14) CALENDAR DAYS, SEED THE STOCKPILE WITH TEMPORARY SEED.

EROSION CONTROL BMPS ARE AT SUGGESTED LOCATIONS. THE ACTUAL LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S ECIP AND BY THE ENGINEER. EROSION CONTROL BMPS SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED OR UNTIL THE ENGINEER DETERMINES THAT THE BMP IS NO LONGER REQUIRED.

FERTILIZER SHALL NOT BE USED WITHIN 100' OF NAVIGABLE WATERWAYS OR WETLANDS.

WHEN DEFINING THE PAVEMENT STRUCTURE, THE BOTTOM OF THE BASE AGGREGATE DENSE IS CONSIDERED THE SUBGRADE LINE. THE SELECT CRUSHED MATERIAL LAYER IS A SUBGRADE IMPROVEMENT.

CONTACT THE PROJECT ENGINEER AND THE SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION (SEWRPC) AT LEAST TWO WEEKS PRIOR TO WORK NEAR ANY PUBLIC SURVEY MONUMENT.

SAWCUT ASPHALTIC AND CONCRETE DRIVEWAYS AND/OR PARKING LOTS AT THE MATCHLINE AS SHOWN ON THE PAVING DETAILS OR AS DIRECTED BY THE ENGINEER.

PROVIDE A CONCRETE JOINT DETAIL PLAN 14 DAYS PRIOR TO PAVING FOR APPROVAL BY THE ENGINEER. 15' MAXIMUM SPACING FOR LONGITUDINAL JOINTS.

CONCRETE PAVEMENT TINING SHALL BE LONGITUDINAL.

VERIFY EXISTING PAVEMENT ELEVATIONS AT ALL TIE-INS TO EXISTING PAVEMENT PRIOR TO CONSTRUCTION. IF A DISCREPANCY IS FOUND BETWEEN PROPOSED PLAN ELEVATIONS AND EXISTING PAVEMENT ELEVATIONS, CONTRACTOR IS TO NOTIFY ENGINEER.

THERE ARE NO RUMBLE STRIPS ALLOWED IN MILWAUKEE COUNTY. DIAGONAL PAVEMENT MARKING WILL BE USED ON SHOULDERS.

EXISTING BUSINESS SIGNS LOCATED WITHIN THE TLE ARE TO REMAIN UNLESS SHOWN IN THE REMOVAL PLAN.

THE EXACT LOCATION OF EXCAVATION BELOW SUBGRADE (EBS) WILL BE DETERMINED BY THE ENGINEER.

ALL PRIVATE EXISTING UTILITIES ARE TO BE ADJUSTED BY THE UTILITIES CONCERNED.

DESIGN, PLANS, SPECIFICATIONS AND QUANTITIES FOR PERMANENT SIGNING PROVIDED BY WISDOT SE REGION. DESIGN, PLANS, SPECIFICATIONS AND QUANTITIES FOR ALL REMAINING ITEMS PROVIDED BY, OR UNDER THE DIRECT SUPERVISION OF, FORWARD 45.

WHEN REMOVING RIGHT-OF-WAY FENCING ADJACENT TO THE MILWAUKEE COUNTY ZOO, USE AN 8-FOOT TALL FENCE FOR BOTH PERMANENT AND TEMPORARY FENCING. ENSURE TEMPORARY FENCING IS IN PLACE PRIOR TO REMOVAL OF EXISTING FENCE.

UITLITY TRENCH PAVEMENT RESTORATION SHALL BE CONSTRUCTED WITH ASPHALTIC SURFACE 5-INCH ON BASE AGGREGATE DENSE 1 1/4-INCH, 10-INCH.

A SOIL EXPANSION FACTOR OF 1.1 WAS USED TO GENERATE ESTIMATED EARTHWORK QUANTITIES. DUE TO POTENTIAL SOIL VARIABILITY, ACTUAL QUANTITIES MAY VARY. NO QUANTITY ADJUSTMENTS WILL BE MADE FOR DIFFERING SOIL EXPANSION FACTORS ENCOUNTERED IN THE FIELD. 3

CONSTRUCT HMA PAVEMENT WITH THE FOLLOWING LAYERS AND GRADATIONS:

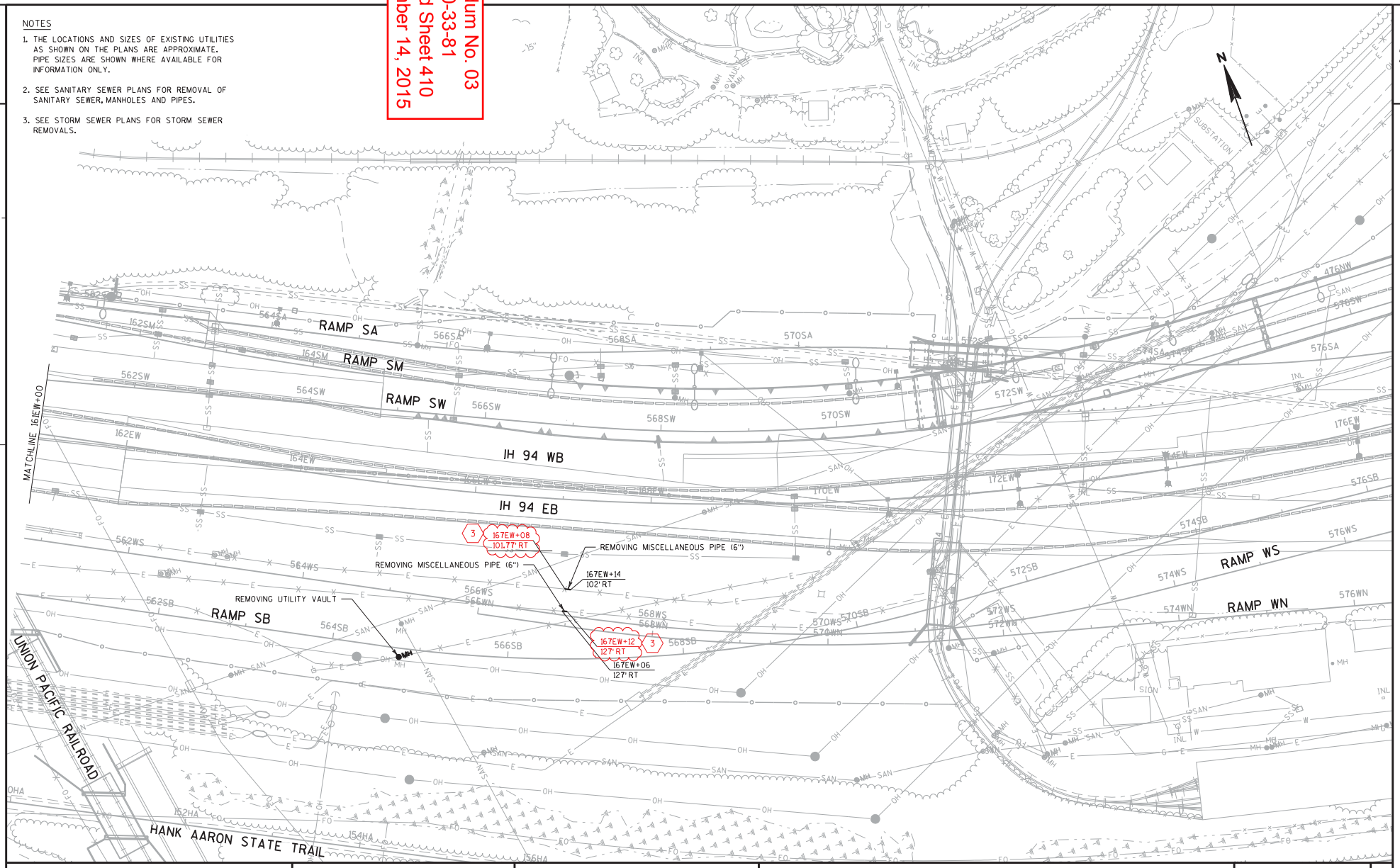
| PAVEMENT TYPE | TOTAL LAYER PAVEMENT THICKNESS | LAYERS | NOMINAL MAXIMUM SIZE GRADATION | ASPHALTIC MATERIAL |
|---|---|---|---|---|
| E-1 | 3" | ONE 3" LAYER | 19.0 MM | PG-64-28 |
| E-30 | 2" | ONE 2" LAYER | 12.5 MM | PG-70-28P |
| E-30 | 9" | 2" UPPER LAYER<br>3-1/2" UPPER-LOWER LAYER<br>3-1/2" LOWER-LOWER LAYER | 12.5 MM<br>25.0 MM<br>25.0 MM | PG-70-28P<br>PG-64-28<br>PG-64-28 |
| ASPHALTIC SURFACE | 3" | ONE 3" LAYER | 19.0 MM | |
| ASPHALTIC SURFACE | 5" | 2" UPPER LAYER<br>3" LOWER LAYER | 12.5 MM<br>19.0 MM | |
| ASPHALTIC SURFACE TEMPORARY | 7 1/2" | 3-1/2" UPPER LAYER<br>4" LOWER LAYER | 25.0 MM<br>25.0 MM | |
| ASPHALTIC SURFACE TEMPORARY | 6" | 2-1/2" UPPER LAYER<br>3-1/2" LOWER LAYER | 12.5 MM<br>19.0 MM | |
| ASPHALTIC SURFACE TEMPORARY | 4" | 1-3/4" UPPER LAYER<br>2-1/4" LOWER LAYER | 12.5 MM<br>19.0 MM | |
| ASPHALTIC SURFACE TEMPORARY | 3" | ONE 3" LAYER | 19.0 MM | |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4
September 14, 2015

Addendum No. 03
ID 1060-33-81
Revised Sheet 410
September 14, 2015

NOTES

1. THE LOCATIONS AND SIZES OF EXISTING UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. PIPE SIZES ARE SHOWN WHERE AVAILABLE FOR INFORMATION ONLY.
2. SEE SANITARY SEWER PLANS FOR REMOVAL OF SANITARY SEWER, MANHOLES AND PIPES.
3. SEE STORM SEWER PLANS FOR STORM SEWER REMOVALS.




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | REMOVAL PLANS- UTILITIES | SHEET 410 | E |
|---|---|---|---|---|---|

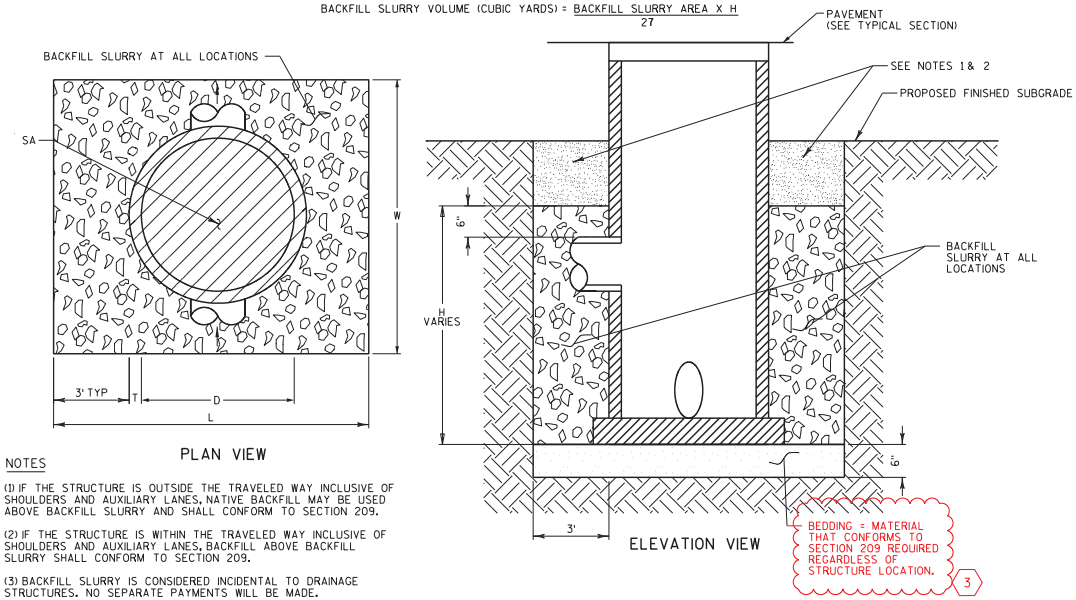
FILE NAME : \\WKERTOVFILPI01\w3zoo\Cadd\Final\10603381_Z2\Roads\cds\021135_rm.dgn PLOT DATE : 10-SEP-2015 14:31 PLOT BY : MSCD1S PLOT NAME : 021135_rm PLOT SCALE : 100:1

## BACKFILL SLURRY STRUCTURES (FOR INFORMATION ONLY)

| DESCRIPTION | DIAMETER / STR LENGTH D FT | RECTANGULAR STR WIDTH RW FT | WALL THICKNESS T INCH | STRUCTURE EXCAVATION LENGTH L FT | STRUCTURE EXCAVATION WIDTH W FT | STRUCTURE EXCAVATION AREA SF | STRUCTURE AREA SA SF | BACKFILL SLURRY AREA SF |
|---|---|---|---|---|---|---|---|---|
| INLETS 2x2.5-FT | 2 | 2.5 | 5 | 8.83 | 9.33 | 82 | 9 | 73 |
| INLETS 2x3-FT | 2 | 3 | 5 | 8.83 | 9.83 | 87 | 11 | 76 |
| INLETS MEDIAN 1 GRATE | 2.5 | 2.5 | 8 | 9.83 | 9.83 | 97 | 15 | 82 |
| INLETS MEDIAN 2 GRATE | 2.5 | 5.33 | 8 | 9.83 | 12.66 | 125 | 26 | 99 |
| INLETS 3-FT DIAMETER | 3 | --- | 4 | 9.67 | 9.67 | 93 | 11 | 83 |
| MANHOLES 3-FT DIAMETER | 3 | --- | 4 | 9.67 | 9.67 | 93 | 11 | 83 |
| INLETS 4-FT DIAMETER | 4 | --- | 5 | 10.83 | 10.83 | 117 | 18 | 99 |
| MANHOLES 4-FT DIAMETER | 4 | --- | 5 | 10.83 | 10.83 | 117 | 18 | 99 |
| MANHOLES 5-FT DIAMETER | 5 | --- | 6 | 12.00 | 12.00 | 144 | 28 | 116 |
| MANHOLES 6-FT DIAMETER | 6 | --- | 7 | 13.17 | 13.17 | 173 | 40 | 133 |
| MANHOLES 7-FT DIAMETER | 7 | --- | 8 | 14.33 | 14.33 | 205 | 55 | 151 |
| MANHOLES 8-FT DIAMETER | 8 | --- | 9 | 15.50 | 15.50 | 240 | 71 | 169 |
| MANHOLES 9-FT DIAMETER | 9 | --- | 10 | 16.67 | 16.67 | 278 | 89 | 188 |
| MANHOLES 10-FT DIAMETER | 10 | --- | 11 | 17.83 | 17.83 | 318 | 110 | 208 |
| SPV STRUCTURE SOUTHWEST CORE POND OUTLET STORM SEWER STRUCTURE | 12 | --- | 12 | 20.00 | 20.00 | 400 | 154 | 246 |
| | 10 | --- | 11 | 17.83 | 17.83 | 318 | 110 | 208 |

H = UP TO 6" ABOVE THE TOP OF THE HIGHEST PIPE IN THE STRUCTURE

BACKFILL SLURRY VOLUME (CUBIC YARDS) = $\frac{\text{BACKFILL SLURRY AREA X H}}{27}$




NOTES

(1) IF THE STRUCTURE IS OUTSIDE THE TRAVELED WAY INCLUSIVE OF SHOULDERS AND AUXILIARY LANES, NATIVE BACKFILL MAY BE USED ABOVE BACKFILL SLURRY AND SHALL CONFORM TO SECTION 209.

(2) IF THE STRUCTURE IS WITHIN THE TRAVELED WAY INCLUSIVE OF SHOULDERS AND AUXILIARY LANES, BACKFILL ABOVE BACKFILL SLURRY SHALL CONFORM TO SECTION 209.

(3) BACKFILL SLURRY IS CONSIDERED INCIDENTAL TO DRAINAGE STRUCTURES. NO SEPARATE PAYMENTS WILL BE MADE.

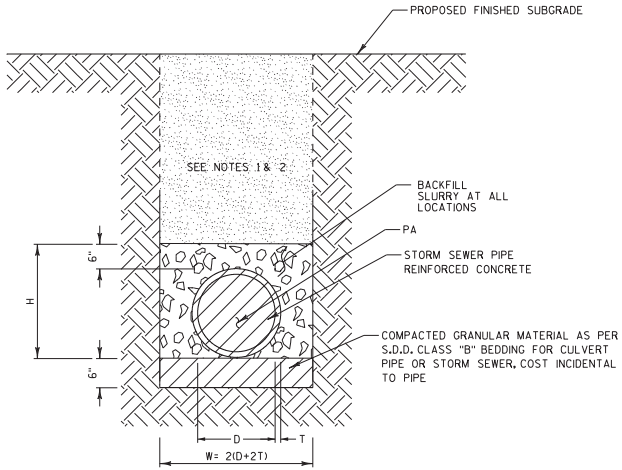
(4) WHEN TEMPORARY SUBGRADE IS HIGHER THAN PROPOSED FINISHED SUBGRADE, PROVIDE GRANULAR BACKFILL AT ALL LOCATIONS. COST FOR GRANULAR BACKFILL IS CONSIDERED INCIDENTAL TO CONSTRUCTION.

## BACKFILL SLURRY DETAIL - STORM SEWER STRUCTURES

## BACKFILL SLURRY TRENCHES (FOR INFORMATION ONLY)

| PIPE DIAMETER D INCHES | Wall Thickness T Inches | Trench Width W FT | Height of Pipe Zone H (From pipe bottom to 6" above top of pipe) | Area of Pipe Zone SF | Area of Pipe PA SF | Backfill Slurry Area SF |
|---|---|---|---|---|---|---|
| 12 | 2.00 | 2.67 | 1.83 | 4.89 | 1.40 | 3.49 |
| 15 | 2.25 | 3.25 | 2.13 | 6.91 | 2.07 | 4.83 |
| 18 | 2.50 | 3.83 | 2.42 | 9.26 | 2.89 | 6.38 |
| 24 | 3.00 | 5.00 | 3.00 | 15.00 | 4.91 | 10.09 |
| 30 | 3.50 | 6.17 | 3.58 | 22.10 | 7.47 | 14.63 |
| 36 | 4.00 | 7.33 | 4.17 | 30.56 | 10.56 | 20.00 |
| 42 | 4.50 | 8.50 | 4.75 | 40.38 | 14.19 | 26.19 |
| 48 | 5.00 | 9.67 | 5.33 | 51.56 | 18.35 | 33.21 |
| 54 | 6.25 | 11.08 | 6.04 | 66.96 | 24.12 | 42.84 |
| 60 | 6.75 | 12.25 | 6.63 | 81.16 | 29.46 | 51.69 |
| 66 | 7.25 | 13.42 | 7.21 | 96.71 | 35.34 | 61.37 |

BACKFILL SLURRY VOLUME (CUBIC YARDS) = $\frac{\text{(PIPE ZONE AREA - PIPE AREA) X PIPE PLAN LENGTH}}{27}$




NOTES

(1) IF THE PIPE IS OUTSIDE THE TRAVELED WAY INCLUSIVE OF SHOULDERS AND AUXILIARY LANES, NATIVE BACKFILL MAY BE USED ABOVE BACKFILL SLURRY AND SHALL CONFORM TO SECTION 209.

(2) IF THE PIPE IS WITHIN THE TRAVELED WAY INCLUSIVE OF SHOULDERS AND AUXILIARY LANES, BACKFILL ABOVE BACKFILL SLURRY SHALL CONFORM TO SECTION 209.

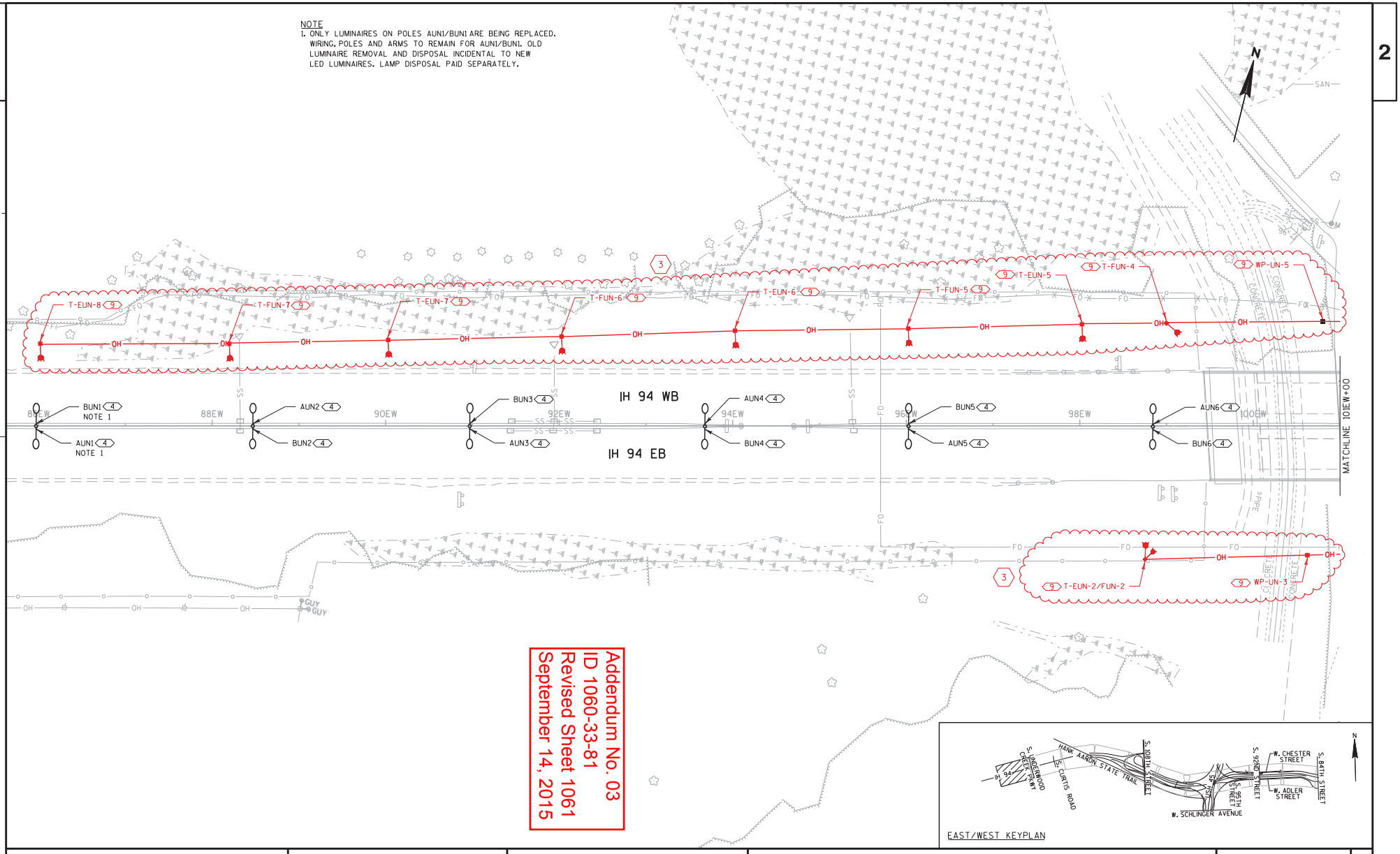
(3) BACKFILL SLURRY IS CONSIDERED INCIDENTAL TO DRAINAGE PIPE. NO SEPARATE PAYMENTS WILL BE MADE.

(4) WHEN TEMPORARY SUBGRADE IS HIGHER THAN PROPOSED FINISHED SUBGRADE, PROVIDE GRANULAR BACKFILL AT ALL LOCATIONS. COST FOR GRANULAR BACKFILL IS CONSIDERED INCIDENTAL TO CONSTRUCTION.

## BACKFILL SLURRY DETAIL - STORM SEWER TRENCH

Addendum No. 03
ID 1060-33-81
Revised Sheet 737
September 14, 2015

NOTE
1. ONLY LUMINAIRES ON POLES AUN1/BUN1 ARE BEING REPLACED. WIRING, POLES AND ARMS TO REMAIN FOR AUN1/BUN1. OLD LUMINAIRE REMOVAL AND DISPOSAL INCIDENTAL TO NEW LED LUMINAIRES. LAMP DISPOSAL PAID SEPARATELY.

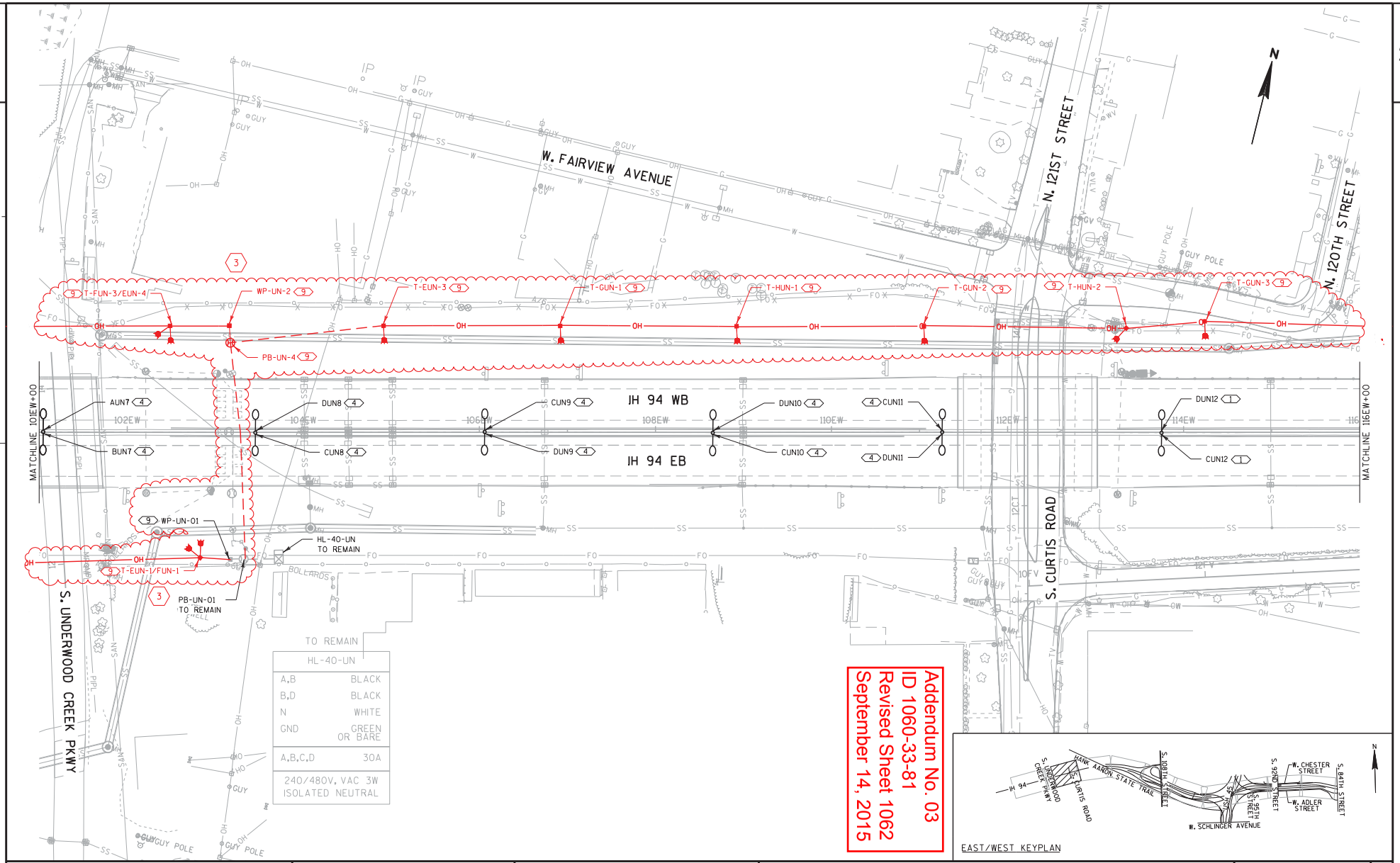



Addendum No. 03
ID 1060-33-81
Revised Sheet 1061
September 14, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | LIGHTING PLANS - REMOVAL | SHEET 1061 | E |
|---|---|---|---|---|---|

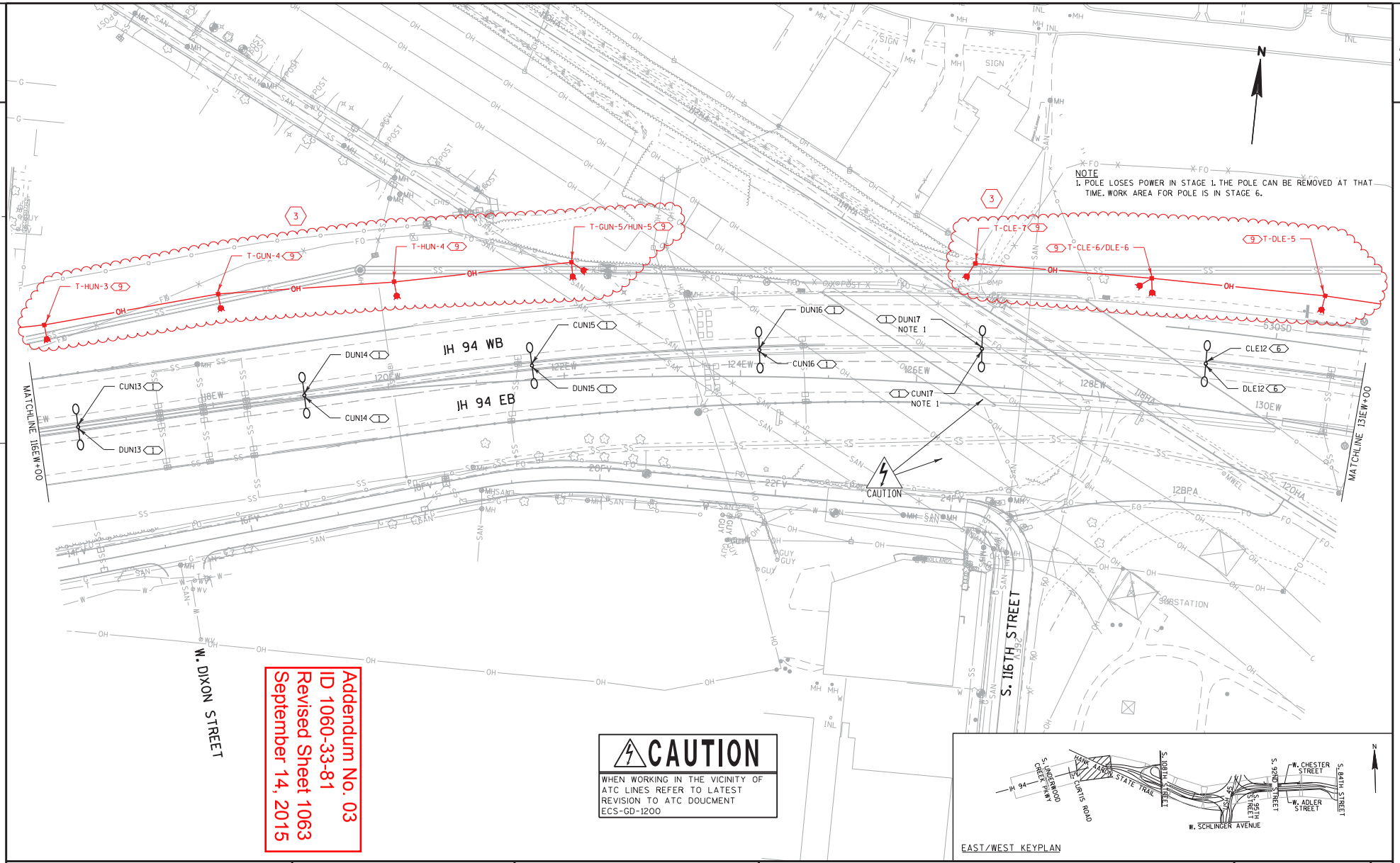
FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\023561_lp.dgn PLOT DATE : 04-SEP-2015 14:26 PLOT BY : MSCITM PLOT NAME : 023561_lp PLOT SCALE : 100:1




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | LIGHTING PLANS - REMOVAL | SHEET 1062 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\023562_lp.dgn PLOT DATE : 10-SEP-2015 13:20 PLOT BY : MSCD1S PLOT NAME : 023562_lp PLOT SCALE : 100:1

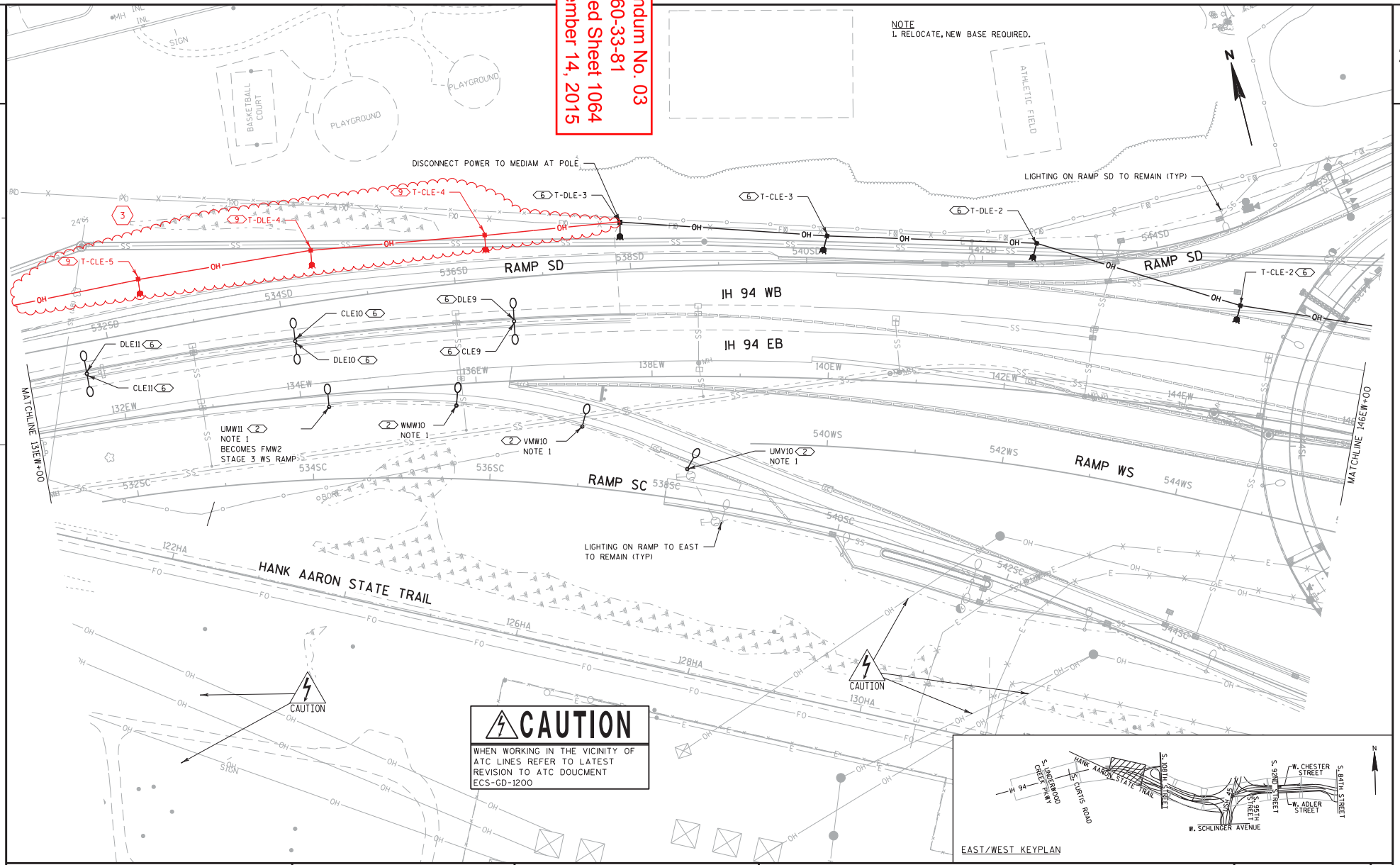
WISDOT/CADDS SHEET 42




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | LIGHTING PLANS - REMOVAL | SHEET 1063 | E |
|---|---|---|---|---|---|

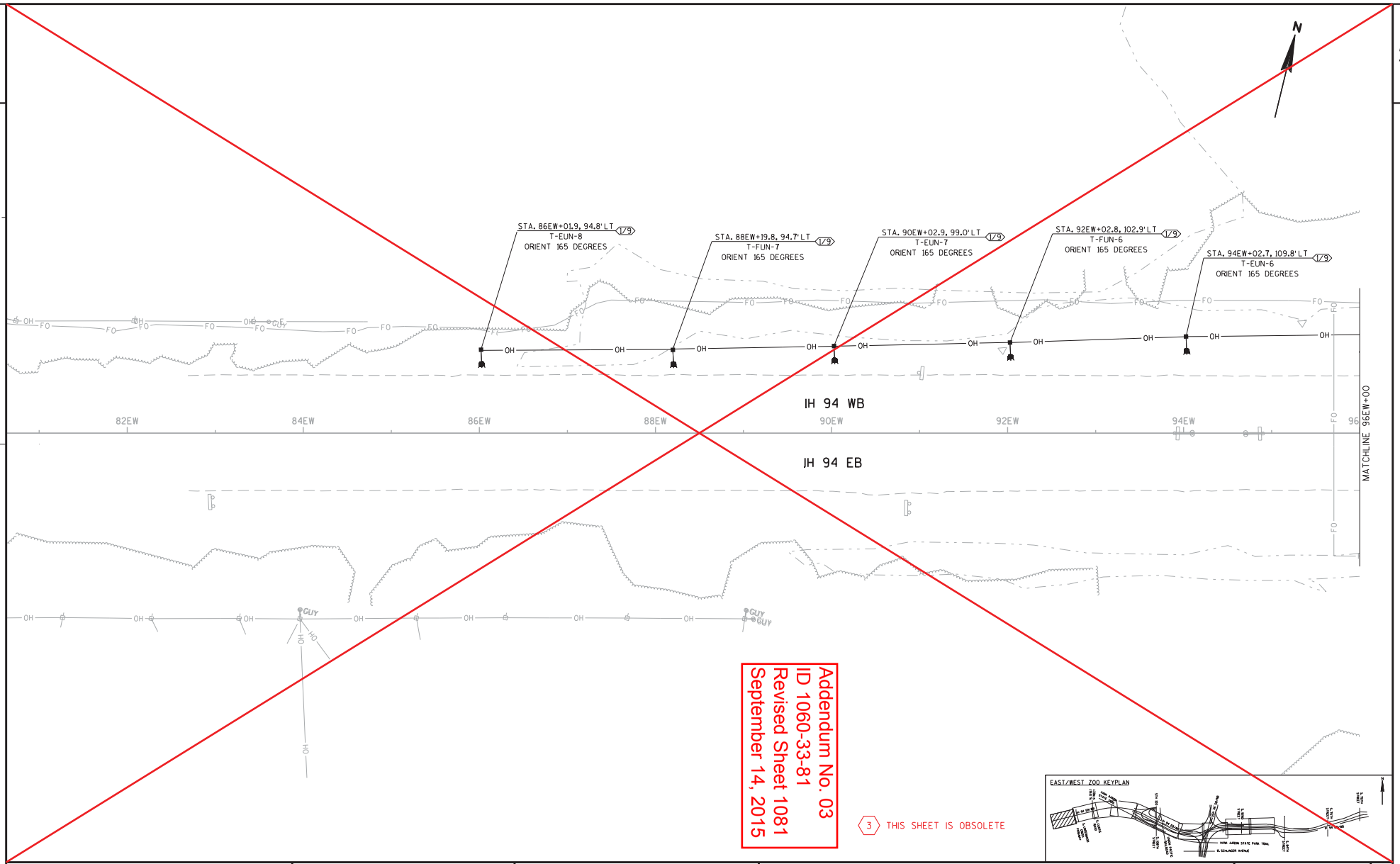
FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\023563_lp.dgn PLOT DATE : 04-SEP-2015 14:26 PLOT BY : MSCITM PLOT NAME : 023563_lp PLOT SCALE : 100:1

Addendum No. 03
ID 1060-33-81
Revised Sheet 1064
September 14, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | LIGHTING PLANS - REMOVAL | SHEET 1064 | E |
|---|---|---|---|---|---|

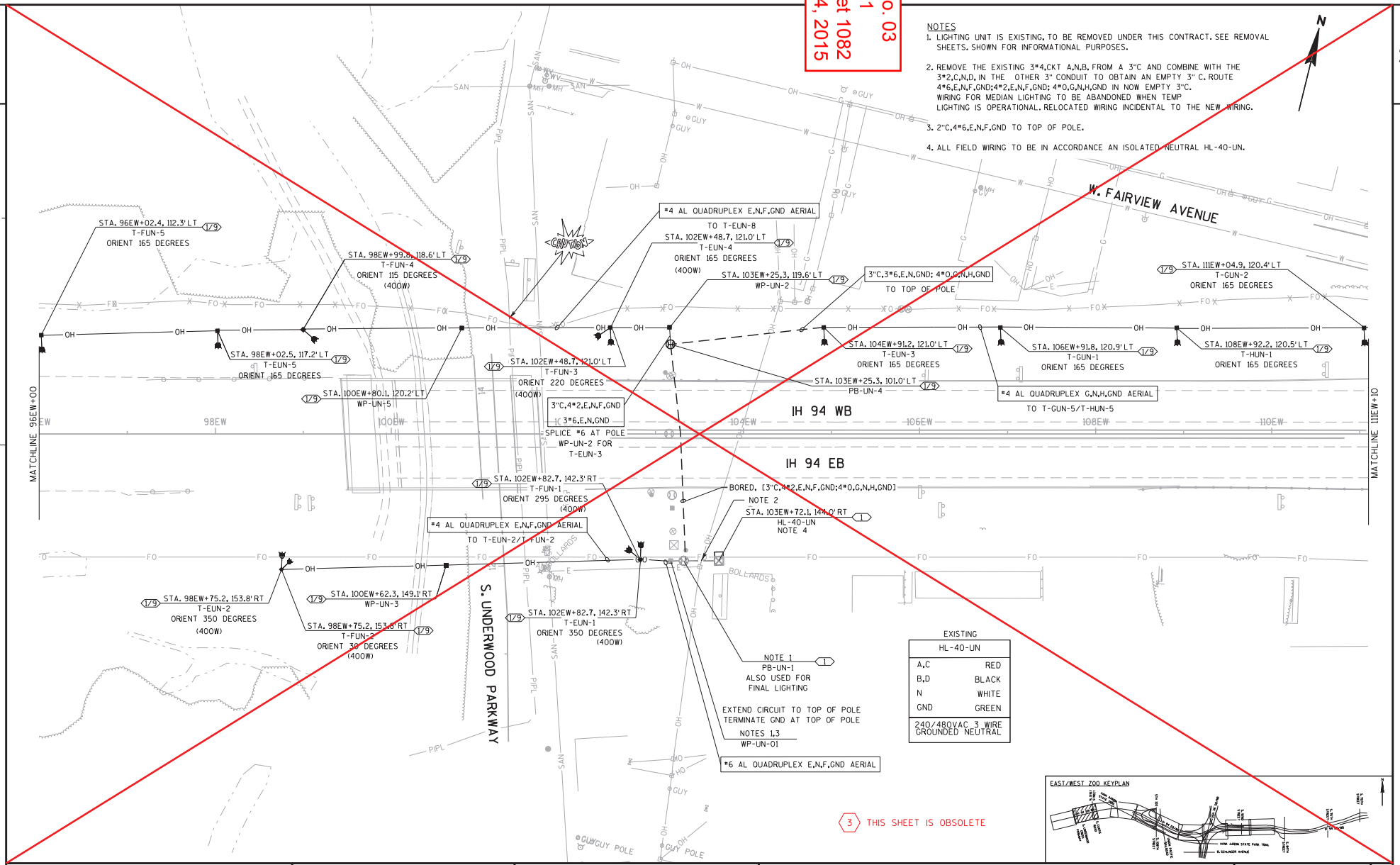
FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\023564_lp.dgn PLOT DATE : 04-SEP-2015 14:27 PLOT BY : MSCITM PLOT NAME : 023564.lp PLOT SCALE : 100:1




| PROJECT NO: 1060-33-81 | HWY: IH 94/IH 894/USH 45 | COUNTY: MILWAUKEE | LIGHTING PLANS - TEMPORARY LIGHTING | SHEET 1081 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\023616_lp.dgn PLOT DATE : 04-SEP-2015 14:24 PLOT BY : MSCITM PLOT NAME : 023616_lp PLOT SCALE : 100:1

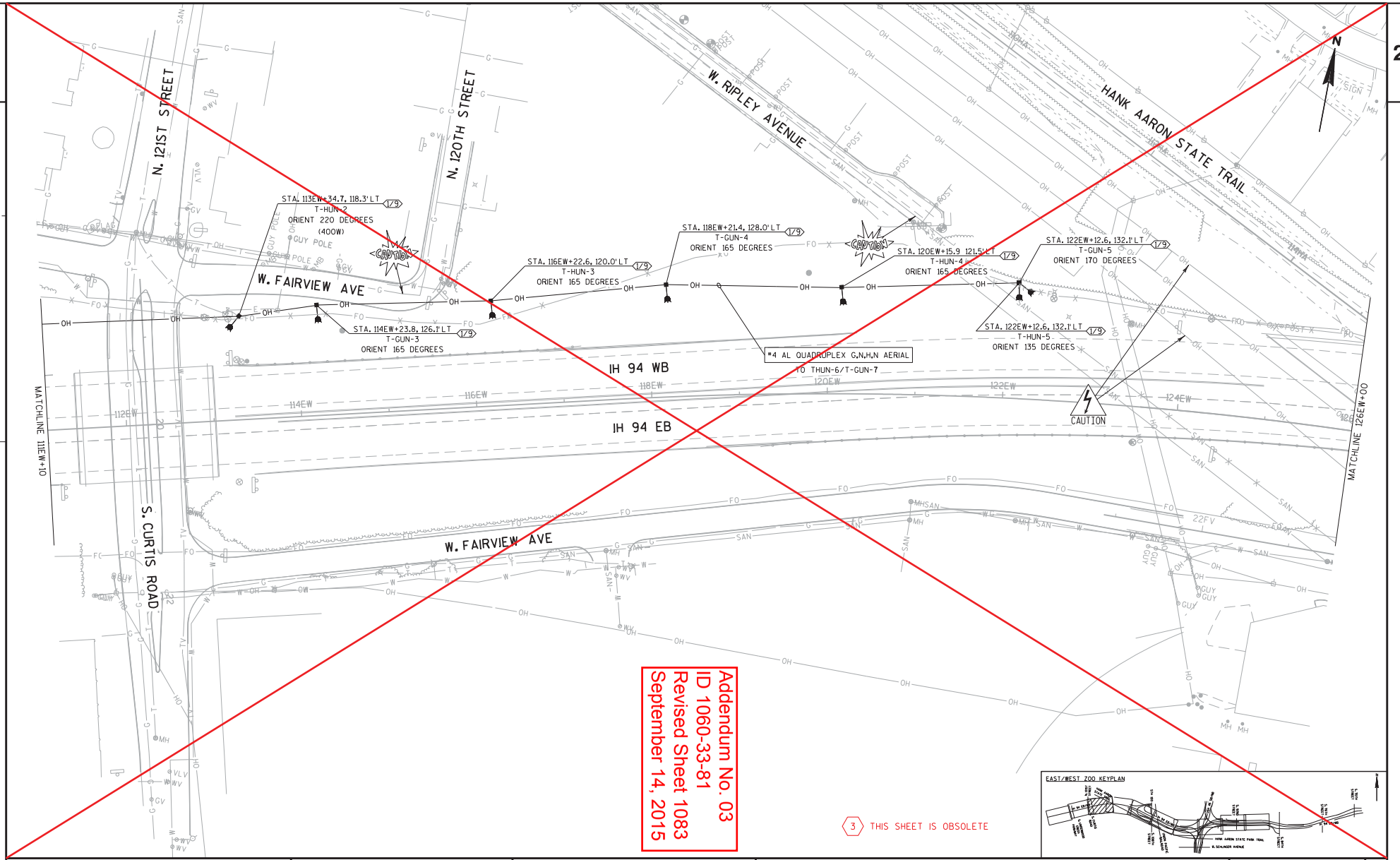
Addendum No. 03
ID 1060-33-81
Revised Sheet 1082
September 14, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 94/IH 894/USH 45 | COUNTY: MILWAUKEE | LIGHTING PLANS - TEMPORARY LIGHTING | SHEET 1082 | E |
|---|---|---|---|---|---|

FILE NAME : \\WKERTOVFILPI01\w3zoo\Cadd\Final\10603381_Z2\Roads\cds\023617_lp.dgn PLOT DATE : 10-SEP-2015 15:24 PLOT BY : MSCD1S PLOT NAME : 023617_lp PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42




Addendum No. 03
ID 1060-33-81
Revised Sheet 1083
September 14, 2015

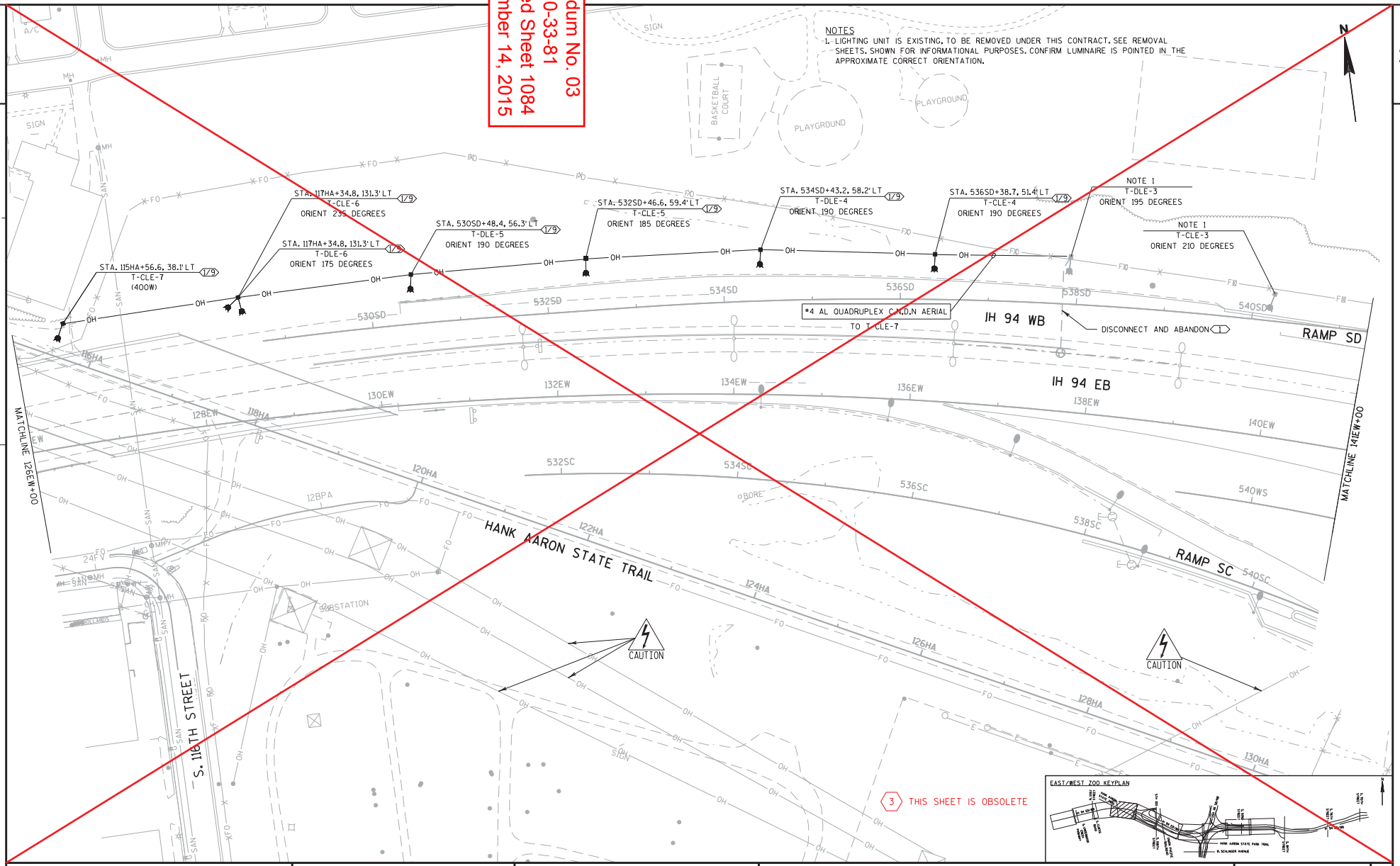
3 THIS SHEET IS OBSOLETE

| PROJECT NO: 1060-33-81 | HWY: IH 94/IH 894/USH 45 | COUNTY: MILWAUKEE | LIGHTING PLANS - TEMPORARY LIGHTING | SHEET 1083 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\023618_lp.dgn PLOT DATE : 04-SEP-2015 14:25 PLOT BY : MSCITM PLOT NAME : 023618_lp PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42

Addendum No. 03
ID 1060-33-81
Revised Sheet 1084
September 14, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 94/IH 894/USH 45 | COUNTY: MILWAUKEE | LIGHTING PLANS - TEMPORARY LIGHTING | SHEET 1084 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\023619_lp.dgn PLOT DATE : 04-SEP-2015 14:25 PLOT BY : MSCITM PLOT NAME : 023619_lp PLOT SCALE : 100:1

## EARTH WORK SUMMARY

| Division | From/To Station | Location | 205.0100 Excavation Common (CY) (1) | SPV. 0035.0100 EBS Excavation (CY) (3) | Salvaged/ Unusable Pavement Material (CY) | Available Material (4) | SPV. 0035.0101 EBS Backfill (CY) (3) | Unexpanded Fill (5) | Expanded Fill (6) | Mass Ordinate +/- (7) | Waste (8) | Borrow | Comment: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut (2) | | | | Factor 1.00 | | Factor 1.10 | | | Item 208.0100 | |
| 1 | 11+29 TO 23+90 | TEMPORARY RAMP EWG | 1,795 | 25 | 1,005 | 790 | 25 | 0 | 0 | 790 | 790 | 0 | |
| Division 1 Subtotal Stage 1 | | | 1,795 | 25 | 1,005 | 790 | 25 | 0 | 0 | 790 | 790 | 0 | |
| 2 | | MAINLINE | | | | | | | | | | | |
| | 190+31 TO 265+07 | USH 45 NB | 34,602 | 484 | 1,063 | 33,539 | 484 | 33,638 | 37,002 | -3,463 | -3,463 | 0 | |
| | 308+00 TO 353+31 | USH 45 NB | 46,393 | 650 | 3,018 | 43,375 | 650 | 7 | 7 | 43,367 | 43,367 | 0 | |
| | 333+42 TO 335+31 | USH 45 SB | 199 | 3 | 11 | 188 | 3 | 858 | 943 | -755 | -755 | 0 | |
| | 88+00 TO 143+00 | IH 94 EB | 2,114 | 30 | 83 | 2,031 | 30 | 59,262 | 65,189 | -63,158 | -63,158 | 0 | |
| | 180+00 TO 192+00 | IH 94 EB | 22,857 | 320 | 520 | 22,337 | 320 | 3,417 | 3,758 | 18,579 | 18,579 | 0 | |
| | 185+00 TO 193+00 | IH 94 WB | 20,605 | 288 | 218 | 20,387 | 288 | 9,535 | 10,489 | 9,898 | 9,898 | 0 | |
| | | RAMPS | | | | | | | | | | | |
| | 540+89 TO 591+47 | WS | 1,471 | 21 | 55 | 1,416 | 21 | 15,681 | 15,681 | -14,264 | -14,264 | 0 | |
| | 571+00 TO 575+00 | CS | 0 | 0 | 0 | 0 | 0 | 733 | 806 | -806 | -806 | 0 | |
| | 598+16 TO 605+61 | WN | 1,740 | 24 | 0 | 1,740 | 24 | 11,741 | 12,915 | -11,175 | -11,175 | 0 | |
| | 536+02 TO 538+65 | EN | 4,305 | 60 | 0 | 4,305 | 60 | 0 | 0 | 4,305 | 4,305 | 0 | |
| | 703+32 TO 717+90 | LA | 9,648 | 135 | 302 | 9,346 | 135 | 5,331 | 5,864 | 3,482 | 3,482 | 0 | |
| | 755+64 TO 762+38 | GA | 2,829 | 40 | 254 | 2,575 | 40 | 251 | 276 | 2,299 | 2,299 | 0 | |
| | 740+36 TO 752+03 | GB | 13,453 | 188 | 0 | 13,453 | 188 | 315 | 347 | 13,106 | 13,106 | 0 | |
| | 761+86 TO 769+45 | GE | 1,774 | 25 | 0 | 1,774 | 25 | 76 | 84 | 1,691 | 1,691 | 0 | |
| | 804+60 TO 806+95 | RAMP BB TUNNEL | 0 | 0 | 0 | 0 | 0 | 5,085 | 5,594 | -5,594 | -5,594 | 0 | |
| | 548+70 TO 566+13 | SB | 470 | 7 | 0 | 470 | 7 | 2,699 | 2,969 | -2,499 | -2,499 | 0 | |
| | 533+83 TO 540+74 | SC | 127 | 2 | 0 | 127 | 2 | 2,251 | 2,476 | -2,350 | -2,350 | 0 | |
| | 449+02 TO 455+46 | SL | 131 | 2 | 0 | 131 | 2 | 811 | 892 | -761 | -761 | 0 | |
| | 789+56 TO 791+45 | FH | 2,641 | 37 | 0 | 2,641 | 37 | 13 | 15 | 2,626 | 2,626 | 0 | |
| | | LOCAL | | | | | | | | | | | |
| | 21+13 TO 26+23 | W. WISCONSIN AVENUE | 702 | 10 | 561 | 142 | 10 | 12 | 13 | 129 | 129 | 0 | |
| | 46+13 TO 49+71 | N. 97TH STREET (TT) | 179 | 3 | 46 | 132 | 3 | 162 | 178 | -45 | -45 | 0 | |
| | 17+26 TO 21+63 | W. FAIRVIEW AVE | 372 | 5 | 0 | 372 | 5 | 18 | 20 | 352 | 352 | 0 | |
| | 9+80 TO 16+93 | XM | 1,450 | 20 | 0 | 1,450 | 20 | 327 | 360 | 1,090 | 1,090 | 0 | |
| | 10+08 TO 13+19 | BIKE PATH A | 217 | 3 | 0 | 217 | 3 | 75 | 82 | 135 | 135 | 0 | |
| | 10+15 TO 17+79 | BIKE PATH B | 554 | 8 | 0 | 554 | 8 | 9,540 | 10,494 | -9,941 | -9,941 | 0 | |
| | | TEMPORARY | | | | | | | | | | | |
| | 1+55 TO 23+15 | RAMP NSD | 8,465 | 119 | 0 | 8,465 | 119 | 3,517 | 3,869 | 4,597 | 4,597 | 0 | |
| | 315+32 TO 328+67 | RAMP NSJ | 223 | 3 | 0 | 223 | 3 | 104 | 115 | 109 | 109 | 0 | |
| | 11+11 TO 16+41 | RAMP EWQ | 408 | 6 | 154 | 254 | 6 | 180 | 198 | 56 | 56 | 0 | |
| | 10+84 TO 15+98 | RAMP EWR | 98 | 1 | 0 | 98 | 1 | 225 | 248 | -150 | -150 | 0 | |

(1) (3) (1)

(CONTINUED ON NEXT SHEET)

Addendum No. 03
ID 1060-33-81
Revised Sheet 1661
September 14, 2015

EARTH WORK SUMMARY (CONTINUED)

| Division | From/To Station | | | Location | 205.0100 Excavation Common (CY) (1) | SPV. 0035.0100 EBS Excavation (CY) (3) | Salvaged/ Unusable Pavement Material (CY) | Available Material (4) | SPV. 0035.0101 EBS Backfill (CY) (3) | Unexpanded Fill (5) | Expanded Fill (6) | Mass Ordinate +/- (7) | Waste (8) | Borrow | Comment: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cut (2) | | | | Factor 1.00 | | Factor 1.10 | | | Item 208.0100 | |
| | 10+89 | TO | 13+36 | RAMP SWC | 50 | 1 | 0 | 50 | 1 | 172 | 189 | -139 | -139 | 0 | |
| | 11+04 | TO | 14+54 | RAMP SLC | 44 | 1 | 0 | 44 | 1 | 370 | 407 | -362 | -362 | 0 | |
| 2 | | | | GRADING | | | | | | | | | | | |
| | 730+00 | TO | 733+36 | RAMP BD GRADING | 80 | 1 | 0 | 80 | 1 | 418 | 460 | -379 | -379 | 0 | |
| | 10+00 | TO | 11+77 | MINOR RETAINING WALL R-2 | 0 | 0 | 0 | 0 | 0 | 86 | 95 | -95 | -95 | 0 | |
| Division 2 Subtotal Stage 2 | | | | | 178,200 | 2,495 | 6,284 | 171,916 | 2,495 | 166,910 | 182,033 | -10,117 | -10,117 | 0 | |
| 3 | | | | MAINLINE | | | | | | | | | | | |
| | 206+00 | TO | 278+30 | USH 45 NB | 22,545 | 316 | 3,973 | 18,572 | 316 | 14,230 | 15,653 | 2,919 | 2,919 | 0 | |
| | 312+00 | TO | 320+50 | USH 45 NB | 8,358 | 117 | 561 | 7,797 | 117 | 0 | 0 | 7,797 | 7,797 | 0 | |
| | 320+50 | TO | 353+31 | USH 45 NB | 8,409 | 118 | 575 | 7,834 | 118 | 0 | 0 | 7,834 | 7,834 | 0 | |
| | 319+80 | TO | 322+00 | USH 45 SB | 424 | 6 | 113 | 311 | 6 | 0 | 0 | 311 | 311 | 0 | |
| | 88+00 | TO | 147+00 | IH 94 EB | 3,133 | 44 | 30 | 3,103 | 44 | 37,440 | 41,184 | -38,082 | -38,082 | 0 | |
| | 196+19 | TO | 208+00 | IH 94 EB | 68,705 | 962 | 353 | 68,352 | 962 | 0 | 0 | 68,352 | 68,352 | 0 | |
| | 129+84 | TO | 145+00 | IH 94 WB | 571 | 8 | 0 | 571 | 8 | 1,950 | 2,145 | -1,574 | -1,574 | 0 | |
| | 198+98 | TO | 209+83 | IH 94 WB | 18,704 | 262 | 110 | 18,594 | 262 | 156 | 171 | 18,422 | 18,422 | 0 | 1 |
| | | | | RAMPS | | | | | | | | | | | |
| | 598+46 | TO | 605+19 | SW | 1,028 | 14 | 0 | 1,028 | 14 | 434 | 478 | 551 | 551 | 0 | |
| | 549+30 | TO | 552+30 | WS | 1,233 | 17 | 0 | 1,233 | 17 | 1,270 | 1,397 | -164 | -164 | 0 | |
| | 537+60 | TO | 561+55 | NE | 2,904 | 41 | 35 | 2,869 | 41 | 6,895 | 7,584 | -4,715 | -4,715 | 0 | |
| | 538+65 | TO | 542+66 | EN | 3,431 | 48 | 10 | 3,420 | 48 | 0 | 0 | 3,420 | 3,420 | 0 | |
| | 765+08 | TO | 768+17 | GA | 437 | 6 | 0 | 437 | 6 | 101 | 111 | 327 | 327 | 0 | |
| | 566+13 | TO | 570+86 | SB | 130 | 2 | 0 | 130 | 2 | 467 | 514 | -383 | -383 | 0 | |
| | | | | LOCAL | | | | | | | | | | | |
| | 20+17 | TO | 27+42 | W. WISCONSIN AVENUE | 1,089 | 15 | 810 | 280 | 15 | 2,234 | 2,457 | -2,177 | -2,177 | 0 | |
| | 46+13 | TO | 49+71 | N. 97TH STREET (TT) | 178 | 2 | 118 | 59 | 2 | 58 | 64 | -5 | -5 | 0 | |
| | | | | TEMPORARY | | | | | | | | | | | |
| | 11+58 | TO | 20+00 | RAMP NSH | 937 | 13 | 350 | 587 | 13 | 11 | 13 | 575 | 575 | 0 | |
| | 10+62 | TO | 23+85 | RAMP EWP | 571 | 8 | 0 | 571 | 8 | 1,935 | 2,129 | -1,558 | -1,558 | 0 | |
| | 13+30 | TO | 15+47 | RAMP EWS | 0 | 0 | 0 | 0 | 0 | 57 | 63 | -63 | -63 | 0 | |
| | 11+05 | TO | 14+15 | RAMP EWT | 209 | 3 | 0 | 209 | 3 | 58 | 64 | 145 | 145 | 0 | |
| | 11+00 | TO | 14+00 | RAMP WSB | 126 | 2 | 76 | 50 | 2 | 274 | 302 | -251 | -251 | 0 | |
| | 11+00 | TO | 13+70 | RAMP WSC | 214 | 3 | 88 | 126 | 3 | 0 | 0 | 126 | 126 | 0 | |
| | 12+98 | TO | 15+21 | RAMP WJA | 253 | 4 | 62 | 191 | 4 | 0 | 0 | 191 | 191 | 0 | |
| | 10+00 | TO | 11+36 | RAMP SBA | 1 | 0 | 62 | -61 | 0 | 245 | 270 | -331 | -331 | 3 0 | |
| Division 3 Subtotal Stage 3 | | | | | 143,591 | 2,010 | 7,326 | 136,265 | 2,010 | 67,816 | 74,597 | 61,668 | 61,668 | 0 | |

(CONTINUED ON NEXT SHEET)

Addendum No. 03
ID 1060-33-81
Revised Sheet 1662
September 14, 2015

EARTH WORK SUMMARY (CONTINUED)

| Division | From/To Station | Location | 205.0100 Excavation Common (CY) (1) | SPV. 0035.0100 EBS Excavation (CY) (3) | Salvaged/ Unusable Pavement Material (CY) | Available Material (4) | SPV. 0035.0101 EBS Backfill (CY) (3) | Unexpanded Fill (5) | Expanded Fill (6) | Mass Ordinate +/- (7) | Waste (8) | Borrow | Comment: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut (2) | | | | Factor 1.00 | | Factor 1.10 | | | Item 208.0100 | |
| 4 | | MAINLINE | | | | | | | | | | | |
| | 314+34 TO 353+31 | USH 45 NB | 22,943 | 321 | 2,923 | 20,020 | 321 | 51,170 | 56,287 | -36,267 | -36,267 | 0 | |
| | 162+00 TO 184+00 | IH 94 EB | 12,506 | 175 | 0 | 12,506 | 175 | 661 | 728 | 11,778 | 11,778 | 0 | |
| | 192+00 TO 196+19 | IH 94 EB | 66,183 | 927 | 1,167 | 65,016 | 927 | 0 | 0 | 65,016 | 65,016 | 0 | |
| | 193+00 TO 199+00 | IH 94 WB | 69,401 | 972 | 445 | 68,957 | 972 | 4,932 | 5,425 | 63,531 | 63,531 | 0 | |
| | | RAMPS | | | | | | | | | | | |
| | 598+95 TO 603+68 | SW | 964 | 13 | 0 | 964 | 13 | 13 | 15 | 950 | 950 | 0 | |
| | 556+10 TO 558+60 | WS | 452 | 6 | 0 | 452 | 6 | 3 | 3 | 449 | 449 | 0 | |
| | 598+50 TO 601+00 | WN | 0 | 0 | 0 | 0 | 0 | 21,744 | 23,918 | -23,918 | -23,918 | 0 | |
| | 527+00 TO 542+66 | EN | 1,095 | 15 | 46 | 1,049 | 15 | 21,549 | 23,704 | -22,655 | -22,655 | 0 | |
| | 724+59 TO 735+35 | BA | 12,305 | 172 | 851 | 11,454 | 172 | 17,880 | 19,668 | -8,215 | -8,215 | 0 | |
| | 746+47 TO 750+38 | WJ | 1,421 | 20 | 0 | 1,421 | 20 | 432 | 475 | 946 | 946 | 0 | |
| | 789+81 TO 792+86 | FC | 17,483 | 245 | 397 | 17,086 | 245 | 15,687 | 17,256 | -170 | -170 | 0 | |
| | | LOCAL | | | | | | | | | | | |
| | 29+72 TO 36+92 | W. WISCONSIN AVENUE | 1,699 | 24 | 859 | 841 | 24 | 9,093 | 10,002 | -9,161 | -9,161 | 0 | 1 |
| | 48+50 TO 50+94 | N. 95TH STREET | 411 | 6 | 0 | 411 | 6 | 140 | 154 | 257 | 257 | 0 | |
| | | GRADING | | | | | | | | | | | |
| | 179+41 TO 185+95 | SW CORE POND (EW) | 14,169 | 198 | 0 | 14,169 | 198 | 498 | 548 | 13,621 | 13,621 | 3 0 | |
| Division 4 Subtotal Stage 4 | | | 221,032 | 3,094 | 6,687 | 214,345 | 3,094 | 143,802 | 158,182 | 56,163 | 56,163 | 0 | |

Addendum No. 03
ID 1060-33-81
Revised Sheet 1663
September 14, 2015

(CONTINUED ON NEXT SHEET)



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\030201_mq_pav.ppt PLOT DATE : 9/1/2015 10:06:28 AM PLOT BY : MSCCEJ PLOT NAME : 030201_mq_pav45 PLOT SCALE : 1:1

EARTH WORK SUMMARY (CONTINUED)

| Division | From/To Station | | | Location | 205.0100 Excavation Common (CY) (1) | SPV. 0035.0100 EBS Excavation (CY) (3) | Salvaged/ Unusable Pavement Material (CY) | Available Material (4) | SPV. 0035.0101 EBS Backfill (CY) (3) | Unexpanded Fill (5) | Expanded Fill (6) | Mass Ordinate +/- (7) | Waste (8) | Borrow | Comment: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cut (2) | | | | Factor 1.00 | | Factor 1.10 | | | Item 208.0100 | |
| 5 | | | | MAINLINE | | | | | | | | | | | |
| | 162+00 | TO | 180+00 | IH 94 EB | 15,205 | 213 | 960 | 14,245 | 213 | 844 | 928 | 13,316 | 13,316 | 0 | |
| | | | | RAMPS | | | | | | | | | | | |
| | 560+45 | TO | 566+11 | WS | 0 | 0 | 0 | 0 | 0 | 1,159 | 1,275 | -1,275 | -1,275 | 0 | |
| | 550+81 | TO | 564+96 | NE | 1,390 | 19 | 0 | 1,390 | 19 | 539 | 593 | 797 | 797 | 0 | |
| | 597+34 | TO | 601+30 | SE | 601 | 8 | 29 | 572 | 8 | 751 | 826 | -255 | -255 | 0 | |
| | 566+78 | TO | 575+34 | SB | 2,792 | 39 | 290 | 2,502 | 39 | 670 | 737 | 1,764 | 1,764 | 0 | |
| | 801+60 | TO | 809+22 | FC | 615 | 9 | 500 | 114 | 9 | 0 | 0 | 114 | 114 | 0 | |
| | | | | TEMPORARY | | | | | | | | | | | |
| | 9+58 | TO | 19+06 | RAMP NSM | 728 | 10 | 261 | 467 | 10 | 86 | 94 | 373 | 373 | 0 | 2 |
| | 15+10 | TO | 21+31 | RAMP EWU | 252 | 4 | 153 | 99 | 4 | 35 | 38 | 61 | 61 | 0 | |
| | 11+00 | TO | 17+29 | RAMP EWV | 231 | 3 | 0 | 231 | 3 | 5 | 5 | 226 | 226 | 0 | |
| | 10+28 | TO | 19+67 | RAMP ENA | 3,899 | 55 | 22 | 3,877 | 55 | 594 | 654 | 3,223 | 3,223 | 0 | |
| | 11+00 | TO | 15+47 | RAMP SWD | 111 | 2 | 0 | 111 | 2 | 85 | 93 | 17 | 17 | 0 | |
| | | | | GRADING | | | | | | | | | | | |
| | 11+15 | TO | 13+30 | SW CORE POND (PSW) | 18,913 | 265 | 0 | 18,913 | 265 | 1 | 1 | 18,912 | 18,912 | 3 0 | |
| Division 5 Subtotal Stage 5 | | | | | 44,736 | 626 | 2,215 | 42,520 | 626 | 4,769 | 5,246 | 37,275 | 37,275 | 0 | |

Addendum No. 03
ID 1060-33-81
Revised Sheet 1664
September 14, 2015

(CONTINUED ON NEXT SHEET)



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\030201_mq_pav.ppt PLOT DATE : 9/1/2015 10:06:28 AM PLOT BY : MSCCEJ PLOT NAME : 030201_mq_pav46 PLOT SCALE : 1:1

EARTH WORK SUMMARY (CONTINUED)

| Division | From/To Station | | | Location | 205.0100 Excavation Common (CY) (1) | SPV. 0035.0100 EBS Excavation (CY) (3) | Salvaged/ Unusable Pavement Material (CY) | Available Material (4) | SPV. 0035.0101 EBS Backfill (CY) (3) | Unexpanded Fill (5) | Expanded Fill (6) | Mass Ordinate +/- (7) | Waste (8) | Borrow | Comment: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cut (2) | | | | Factor 1.00 | | Factor 1.10 | | | Item 208.0100 | |
| 6 | | | | MAINLINE | | | | | | | | | | | |
| | 289+95 | TO | 292+14 | USH 45 NB | 0 | 0 | 0 | 0 | 0 | 41,314 | 45,445 | -45,445 | -45,445 | 0 | |
| | 192+00 | TO | 304+45 | USH 45 SB | 48,051 | 673 | 6,860 | 41,191 | 673 | 60,887 | 66,975 | -25,785 | -25,785 | 0 | |
| | 180+00 | TO | 185+50 | IH 94 EB | 4,573 | 64 | 0 | 4,573 | 64 | 52 | 57 | 4,516 | 4,516 | 0 | |
| | 88+00 | TO | 185+00 | IH 94 WB | 51,888 | 726 | 3,082 | 48,806 | 726 | 65,243 | 71,767 | -22,961 | -22,961 | 0 | |
| | | | | RAMPS | | | | | | | | | | | |
| | 559+26 | TO | 564+81 | SW | 4,872 | 68 | 713 | 4,159 | 68 | 0 | 0 | 4,159 | 4,159 | 0 | |
| | 556+53 | TO | 572+02 | CS | 6,185 | 87 | 1,745 | 4,440 | 87 | 810 | 892 | 3,549 | 3,549 | 0 | |
| | 514+22 | TO | 542+00 | EN | 13,239 | 185 | 190 | 13,048 | 185 | 29,790 | 32,769 | -19,721 | -19,721 | 0 | |
| | 581+32 | TO | 594+05 | SE | 154 | 2 | 0 | 154 | 2 | 32,119 | 35,331 | -35,177 | -35,177 | 0 | |
| | 572+01 | TO | 579+43 | ES | 1,421 | 20 | 0 | 1,421 | 20 | 1,414 | 1,556 | -135 | -135 | 0 | |
| | 604+12 | TO | 607+16 | ES | 87 | 1 | 0 | 87 | 1 | 9,250 | 10,175 | -10,088 | -10,088 | 0 | |
| | 711+00 | TO | 712+62 | LD | 959 | 13 | 0 | 959 | 13 | 0 | 0 | 959 | 959 | 0 | |
| | 738+46 | TO | 751+71 | GC | 8,906 | 125 | 249 | 8,657 | 125 | 2,206 | 2,427 | 6,230 | 6,230 | 0 | |
| | 755+28 | TO | 791+09 | GD | 26,811 | 375 | 91 | 26,721 | 375 | 19,558 | 21,514 | 5,207 | 5,207 | 0 | |
| | 787+50 | TO | 789+95 | GE | 0 | 0 | 0 | 0 | 0 | 16,336 | 17,970 | -17,970 | -17,970 | 0 | |
| | 561+12 | TO | 564+28 | GH | 177 | 2 | 0 | 177 | 2 | 392 | 431 | -254 | -254 | 0 | |
| | 702+68 | TO | 720+92 | BC | 9,809 | 137 | 0 | 9,809 | 137 | 200 | 220 | 9,588 | 9,588 | 0 | 1 |
| | 559+81 | TO | 577+88 | SA | 2,476 | 35 | 159 | 2,317 | 35 | 3,322 | 3,655 | -1,337 | -1,337 | 0 | |
| | 531+74 | TO | 546+15 | SD | 919 | 13 | 0 | 919 | 13 | 12,828 | 14,111 | -13,193 | -13,193 | 0 | |
| | 160+64 | TO | 163+93 | SM | 1,309 | 18 | 0 | 1,309 | 18 | 0 | 0 | 1,309 | 1,309 | 0 | |
| | 792+86 | TO | 796+00 | FC | 30,824 | 432 | 0 | 30,824 | 432 | 1,136 | 1,250 | 29,575 | 29,575 | 0 | |
| | 791+45 | TO | 801+14 | FH | 17,984 | 252 | 228 | 17,757 | 252 | 3,664 | 4,030 | 13,727 | 13,727 | 0 | |
| | | | | LOCAL | | | | | | | | | | | |
| | 12+42 | TO | 18+66 | S. 100TH STREET (TD) | 552 | 8 | 0 | 552 | 8 | 319 | 351 | 201 | 201 | 0 | |
| | 17+00 | TO | 21+10 | S. 100TH STREET (TE) | 429 | 6 | 0 | 429 | 6 | 6 | 6 | 423 | 423 | 0 | |
| | | | | TEMPORARY | | | | | | | | | | | |
| | 11+44 | TO | 19+24 | RAMP NSQ | 1,771 | 25 | 154 | 1,617 | 25 | 10 | 11 | 1,605 | 1,605 | 0 | |
| | 10+24 | TO | 14+90 | RAMP EWW | 113 | 2 | 0 | 113 | 2 | 45 | 50 | 63 | 63 | 0 | |
| | 12+28 | TO | 14+47 | RAMP ENB | 50 | 1 | 0 | 50 | 1 | 86 | 95 | -45 | -45 | 0 | |
| | 10+52 | TO | 14+40 | RAMP WSD | 0 | 0 | 0 | 0 | 0 | 710 | 781 | -781 | -781 | 0 | |
| | | | | GRADING | | | | | | | | | | | |
| | 487+00 | TO | 491+60 | NW INFIELD (NW) | 2,174 | 0 | 0 | 2,174 | 0 | 4,986 | 5,485 | -3,311 | -3,311 | 0 | |
| | 793+90 | TO | 799+50 | NE INFIELD GRADING (NEG) | 12,255 | 0 | 0 | 12,255 | 0 | 25,047 | 27,551 | -15,296 | -15,296 | 0 | |
| | 10+01 | TO | 14+95 | SW CORE POND (PSW) | 103,759 | 0 | 673 | 103,086 | 0 | 426 | 469 | 102,617 | 102,617 | 3 0 | |
| Division 6 Subtotal Stage 6 | | | | | 351,748 | 3,270 | 14,144 | 337,604 | 3,270 | 332,159 | 365,374 | -27,770 | -27,770 | 0 | |

(CONTINUED ON NEXT SHEET)

Addendum No. 03
ID 1060-33-81
Revised Sheet 1665
September 14, 2015

EARTH WORK SUMMARY (CONTINUED)

| Division | From/To Station | | | Location | 205.0100 Excavation Common (CY) (1) | SPV. 0035.0100 EBS Excavation (CY) (3) | Salvaged/ Unusable Pavement Material (CY) | Available Material (4) | SPV. 0035.0101 EBS Backfill (CY) (3) | Unexpanded Fill (5) | Expanded Fill (6) | Mass Ordinate +/- (7) | Waste (8) | Borrow | Comment: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cut (2) | | | | Factor 1.00 | | Factor 1.10 | | | Item 208.0100 | |
| 7 | | | | MAINLINE | | | | | | | | | | | |
| | 191+50 | TO | 320+00 | USH 45 NB | 5,514 | 77 | 32 | 5,482 | 77 | 325 | 357 | 5,125 | 5,125 | 0 | |
| | 191+50 | TO | 273+22 | USH 45 SB | 6,400 | 90 | 504 | 5,896 | 90 | 44 | 49 | 5,847 | 5,847 | 0 | |
| | 88+00 | TO | 93+50 | IH 94 EB | 842 | 12 | 0 | 842 | 12 | 0 | 0 | 842 | 842 | 0 | |
| | 117+00 | TO | 128+66 | IH 94 EB | 0 | 0 | 0 | 0 | 0 | 5,547 | 6,102 | -6,102 | -6,102 | 0 | |
| | 147+00 | TO | 152+95 | IH 94 EB | 730 | 10 | 0 | 730 | 10 | 0 | 0 | 730 | 730 | 0 | |
| | 88+00 | TO | 94+00 | IH 94 WB | 1,393 | 20 | 0 | 1,393 | 20 | 0 | 0 | 1,393 | 1,393 | 0 | |
| | 148+65 | TO | 154+74 | IH 94 WB | 979 | 14 | 0 | 979 | 14 | 0 | 0 | 979 | 979 | 0 | |
| | | | | RAMPS | | | | | | | | | | | |
| | 545+30 | TO | 550+86 | WS | 147 | 2 | 0 | 147 | 2 | 0 | 0 | 147 | 147 | 0 | |
| | 569+00 | TO | 573+22 | CS | 42 | 1 | 0 | 42 | 1 | 67 | 74 | -32 | -32 | 0 | |
| | 516+05 | TO | 542+66 | EN | 2,865 | 40 | 125 | 2,740 | 40 | 21,213 | 23,334 | -20,594 | -20,594 | 0 | |
| | 806+95 | TO | 822+48 | BB | 33,640 | 471 | 1,199 | 32,441 | 471 | 2,471 | 2,718 | 29,723 | 29,723 | 0 | |
| | 800+73 | TO | 804+00 | FH | 3,287 | 46 | 116 | 3,171 | 46 | 964 | 1,061 | 2,110 | 2,110 | 0 | |
| | | | | LOCAL | | | | | | | | | | | |
| | 11+33 | TO | 14+98 | CURTIS ROAD | 1,393 | 0 | 732 | 661 | 0 | 0 | 0 | 661 | 661 | 0 | |
| | | | | TEMPORARY | | | | | | | | | | | |
| | 11+00 | TO | 18+79 | RAMP NSP | 1,540 | 22 | 0 | 1,540 | 22 | 59 | 65 | 1,475 | 1,475 | 0 | |
| | | | | GRADING | | | | | | | | | | | |
| | 484+16 | TO | 487+00 | NW INFIELD (NW) | 2,127 | 0 | 0 | 2,127 | 0 | 13,110 | 14,421 | -12,294 | -12,294 | 3 0 | |
| Division 7 Subtotal Stage 7 | | | | | 60,901 | 803 | 2,709 | 58,192 | 803 | 43,801 | 48,181 | 10,011 | 10,011 | 0 | |

Addendum No. 03
ID 1060-33-81
Revised Sheet 1666
September 14, 2015

(CONTINUED ON NEXT SHEET)



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\030201_mq_pav.ppt PLOT DATE : 9/1/2015 10:06:28 AM PLOT BY : MSCCEJ PLOT NAME : 030201_mq_pav48 PLOT SCALE : 1:1

EARTH WORK SUMMARY (CONTINUED)

| Division | From/To Station | Location | 205.0100 Excavation Common (CY) (1) | SPV. 0035.0100 EBS Excavation (CY) (3) | Salvaged/ Unusable Pavement Material (CY) | Available Material (4) | SPV. 0035.0101 EBS Backfill (CY) (3) | Unexpanded Fill (5) | Expanded Fill (6) | Mass Ordinate +/- (7) | Waste (8) | Borrow | Comment: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut (2) | | | | Factor 1.00 | | Factor 1.10 | | | Item 208.0100 | |
| 8 | | MAINLINE | | | | | | | | | | | |
| | 255+25 TO 265+06 | USH 45 NB | 304 | 4 | 0 | 304 | 4 | 1,921 | 2,113 | -1,809 | -1,809 | 0 | |
| | 287+46 TO 299+40 | USH 45 NB | 1,844 | 26 | 0 | 1,844 | 26 | 14,517 | 15,969 | -14,125 | -14,125 | 0 | |
| | | RAMPS | | | | | | | | | | | |
| | 561+06 TO 568+26 | NE | 814 | 11 | 0 | 814 | 11 | 1 | 1 | 813 | 813 | 0 | |
| | 523+58 TO 525+00 | EN | 0 | 0 | 0 | 0 | 0 | 599 | 659 | -659 | -659 | 0 | |
| | 587+07 TO 590+00 | SE | 31 | 0 | 0 | 31 | 0 | 13,454 | 14,799 | -14,768 | -14,768 | 0 | |
| | 708+10 TO 712+62 | LD | 1,792 | 25 | 99 | 1,693 | 25 | 310 | 341 | 1,352 | 1,352 | 0 | |
| | 761+00 TO 766+50 | GA | 1,183 | 17 | 0 | 1,183 | 17 | 75 | 82 | 1,101 | 1,101 | 0 | |
| | 764+53 TO 789+95 | GE | 11,464 | 160 | 0 | 11,464 | 160 | 5,993 | 6,592 | 4,872 | 4,872 | 0 | |
| | 799+61 TO 804+60 | BB | 7,868 | 110 | 76 | 7,792 | 110 | 14,138 | 15,552 | -7,760 | -7,760 | 0 | |
| | 796+00 TO 818+73 | FC | 13,887 | 194 | 125 | 13,763 | 194 | 53 | 59 | 13,704 | 13,704 | 0 | |
| | | LOCAL | | | | | | | | | | | |
| | 525+60 TO 533+10 | W. SCHLINGER AVENUE | 3,193 | 45 | 0 | 3,193 | 45 | 7 | 8 | 3,185 | 3,185 | 0 | |
| | 30+51 TO 42+33 | S. 100TH STREET | 2,850 | 40 | 0 | 2,850 | 40 | 274 | 302 | 2,549 | 2,549 | 0 | 1 |
| | 16+93 TO 24+70 | XM | 1,358 | 19 | 0 | 1,358 | 19 | 237 | 261 | 1,097 | 1,097 | 0 | |
| | 111+34 TO 193+01 | HA | 14,347 | 201 | 0 | 14,347 | 201 | 3,251 | 3,577 | 10,770 | 10,770 | 0 | |
| Division 8 Subtotal Stage 8 | | | 60,936 | 853 | 300 | 60,636 | 853 | 54,829 | 60,312 | 324 | 324 | 0 | |
| 9 | | MAINLINE | | | | | | | | | | | |
| | 304+00 TO 311+70 | USH 45 NB | 1,997 | 28 | 0 | 1,997 | 28 | 0 | 0 | 1,997 | 1,997 | 0 | |
| | 304+00 TO 311+20 | USH 45 SB | 1,131 | 16 | 0 | 1,131 | 16 | 22 | 24 | 1,106 | 1,106 | 0 | |
| Division 9 Subtotal Stage 9 | | | 3,128 | 44 | 0 | 3,128 | 44 | 22 | 24 | 3,104 | 3,104 | 0 | 3 |
| Total | | | 1,066,067 | 13,221 | 40,670 | 1,025,397 | 13,221 | 814,117 | 893,959 | 131,438 | 131,438 | 0 | |

**NOTES:**

1) Salvaged/Unsuable Pavement Material is included in Cut.
3) EBS Excavation SPV.00350100 (CY) to be backfilled with EBS Backfill SPV.0035.0101 (CY). EBS Excavation volume assumed as 5% of total roadway area at an average depth of 18-inches, in addition to locations shown in plans. All EBS Excavation to be wasted offsite. EBS Backfill Factor = 1.00.
Actual extents and depths of EBS Excavation will be determined by the engineer in the field.
4) Available Material = Cut - Salvaged/Unusuable Pavement Material
5) The backfill needed to construct the mechanically stabilized earth walls has been estimated. The MSE backfill quantity has been subtracted from the fill volume in all end area calculations. The width of the MSE backfill off of the back of the MSE wall has been estimated as 0.8 times the height of the retaining walls.
6) Expanded Fill. Factor = 1.20 Expanded Fill = Unexpanded Fill * Fill Factor
7) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.
8) The storm sewer excavation is estimated to be between 75,000 and 125,000 cubic yards and total structural excavation from all structures is estimated to be between 75,000 and 100,000 cubic yards dependant on the means and methods used for construction. These quantities are not included in this table and should be considered additional waste that is incidental to the storm sewer and structure items.
9) A soil expansion factor of 1.1 was used to generate estimated earthwork quantities. Due to potential soil variability, actual quantities may vary. No quantity adjustments will be made for differing soil expansion factors encountered in the field. 3

Addendum No. 03
ID 1060-33-81
Revised Sheet 1667
September 14, 2015

| STAGE | ROADWAY | STATION | TO | STATION | OFFSET | 511.1300.0001 TEMPORARY SHORING 217NS+00 to 228NS+57 SF | 511.1300.0002 TEMPORARY SHORING 275NS+26 to 275NS+51 SF | 511.1300.0003 TEMPORARY SHORING 230NS+97 to 238NS+00 SF | 511.1300.0004 TEMPORARY SHORING 93EW+60 to 99EW+20 SF | 511.1300.0005 TEMPORARY SHORING 102EW+37 to 107EW+30 SF | 511.1300.0006 TEMPORARY SHORING 110EW+20 to 111EW+25 SF | 511.1300.0007 TEMPORARY SHORING 142EW+68 to 143EW+18 SF | 511.1300.0008 TEMPORARY SHORING 203EW+84 to 204EW+03 SF | 511.1300.0009 TEMPORARY SHORING 16EWP+00 to 16EWP+84 SF | 511.1300.0010 TEMPORARY SHORING 169EW+85 to 180EW+35 SF | 511.1300.0011 TEMPORARY SHORING 13ENA+96 to 14ENA+80 SF | 511.1300.0012 TEMPORARY SHORING 15ENA+96 to 16ENA+61 SF | 511.1300.0013 TEMPORARY SHORING 267NS+00 to 267NS+10 SF | 511.1300.0014 TEMPORARY SHORING 269NS+54 to 269NS+64 SF | 511.1300.0015 TEMPORARY SHORING 291NS+08 to 291NS+73 SF | 511.1300.0016 TEMPORARY SHORING 104EW+94 to 105EW+09 SF | 511.1300.0017 TEMPORARY SHORING 148EW+97 to 149EW+07 SF | 511.1300.0018 TEMPORARY SHORING 797FC+00 to 798FC+25 SF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **MAINLINE** | | | | | | | | | | | | | | | | | | | | | |
| 3 | IH 894/USH 45 | | | | | | | | | | | | | | | | | | | | | |
| | | 217NS+00 | | 228NS+57 | LT | 8,114 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | 275NS+26 | | 275NS+51 | LT | -- | 330 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | 230NS+97 | | 238NS+00 | LT | -- | -- | 5,459 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | IH 94 EB | | | | | | | | | | | | | | | | | | | | | |
| | | 93EW+60 | | 99EW+20 | LT | -- | -- | -- | 2,792 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | 102EW+37 | | 107EW+30 | LT | -- | -- | -- | -- | 2,034 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | 110EW+20 | | 111EW+25 | LT | -- | -- | -- | -- | -- | 478 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | 142EW+68 | | 143EW+18 | LT | -- | -- | -- | -- | -- | -- | 1,300 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | 203EW+84 | | 204EW+03 | LT | -- | -- | -- | -- | -- | -- | -- | 540 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | **TEMPORARY** | | | | | | | | | | | | | | | | | | | | | |
| | RAMP EWP | | | | | | | | | | | | | | | | | | | | | |
| | | 16EWP+00 | | 16EWP+84 | RT | -- | -- | -- | -- | -- | -- | -- | -- | 348 | -- | -- | -- | -- | -- | -- | -- | -- |
| | **MAINLINE** | | | | | | | | | | | | | | | | | | | | | |
| 4 | IH 94 EB | | | | | | | | | | | | | | | | | | | | | |
| | | 169EW+85 | | 180EW+35 | LT | -- | -- | -- | -- | -- | -- | -- | -- | -- | 11,490 | -- | -- | -- | -- | -- | -- | -- |
| | **TEMPORARY** | | | | | | | | | | | | | | | | | | | | | |
| 5 | RAMP ENA | | | | | | | | | | | | | | | | | | | | | |
| | | 13ENA+96 | | 14ENA+80 | RT | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 369 | -- | -- | -- | -- | -- | -- |
| | | 15ENA+96 | | 16ENA+61 | RT | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 330 | -- | -- | -- | -- | -- |
| | **MAINLINE** | | | | | | | | | | | | | | | | | | | | | |
| 6 | IH 894/USH 45 | | | | | | | | | | | | | | | | | | | | | |
| | | 267NS+00 | | 267NS+10 | LT | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 60 | -- | -- | -- | -- |
| | | 269NS+54 | | 269NS+64 | LT | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 80 | -- | -- | -- |
| | | 291NS+08 | | 291NS+73 | RT | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 780 | -- | -- |
| | IH 94 | | | | | | | | | | | | | | | | | | | | | |
| | | 104EW+94 | | 105EW+09 | LT | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 105 | -- |
| | | 148EW+97 | | 149EW+07 | LT | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 60 |
| | **RAMPS** | | | | | | | | | | | | | | | | | | | | | |
| | RAMP FC | | | | | | | | | | | | | | | | | | | | | |
| | | 797FC+00 | | 798FC+25 | LT | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1,875 |
| | TOTALS | | | | | 8,114 | 330 | 5,459 | 2,792 | 2,034 | 478 | 1,300 | 540 | 348 | 11,490 | 369 | 330 | 60 | 80 | 780 | 105 | 1,875 |

ALL ITEMS CATEGORY 1000

Addendum No. 03
ID 1060-33-81
Revised Sheet 1737
September 14, 2015

## RESTORATION ITEMS

| CATEGORY | LOCATION | STATION | TO | STATION | 628.6505 SOIL STABILIZER TYPE A ACRE | 628.6510 SOIL STABILIZER TYPE B ACRE | 629.0205 FERTILIZER TYPE A CWT | 629.0210 FERTILIZER TYPE B CWT | 630.0130 SEEDING MIXTURE NO. 30 LB | 630.0171 SEEDING MIXTURE NO. 70A LB | 630.0180 SEEDING MIXTURE NO. 80 LB | 630.0200 SEEDING TEMPORARY LB | 631.0300 SOD WATER MGAL | 631.1000 SOD LAWN SY | SPV.0085.0200 SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX LB | SPV.0120.0001 SEEDING WATER MGAL | SPV.0180.0200 TOPSOIL SPECIAL SY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **MAINLINE** | | | | | | | | | | | | | | | | |
| 1000 | IH 894 WB/ USH 45 NB | | | | | | | | | | | | | | | | |
| | | 190NS+31 | - | 206NS+69 | -- | -- | -- | 2.5 | 72 | -- | -- | 54 | -- | -- | -- | -- | 3,977 |
| | | 217NS+91 | - | 229NS+68 | -- | -- | -- | 3.6 | 90 | -- | 6 | 78 | -- | -- | -- | 85.2 | 5,727 |
| | | 230NS+47 | - | 240NS+29 | -- | -- | -- | 2.2 | 60 | -- | 2 | 48 | -- | -- | -- | 27.8 | 3,536 |
| | | 242NS+28 | - | 252NS+71 | -- | -- | -- | 6.2 | 178 | -- | -- | 134 | -- | -- | -- | -- | 9,889 |
| | | 254NS+09 | - | 265NS+06 | -- | -- | -- | 5.1 | 146 | -- | -- | 110 | -- | -- | -- | -- | 8,084 |
| | | 289NS+95 | - | 292NS+14 | -- | -- | -- | 3.5 | -- | 20 | -- | 75 | -- | -- | -- | 617.4 | 5,498 |
| | | 295NS+29 | - | 299NS+59 | -- | -- | -- | 3.0 | -- | 18 | -- | 65 | -- | -- | -- | 539.8 | 4,807 |
| | | 334NS+91 | - | 346NS+34 | -- | -- | -- | 12.0 | 344 | -- | -- | 258 | -- | -- | -- | -- | 19,092 |
| | | 349NS+80 | - | 353NS+31 | -- | -- | -- | .3 | 9 | -- | -- | 7 | -- | -- | -- | -- | 486 |
| | IH 894 EB/ USH 45 SB | | | | | | | | | | | | | | | | |
| | | 197NS+26 | - | 208NS+00 | -- | -- | -- | 1.8 | 53 | -- | -- | 40 | -- | -- | -- | -- | 2,934 |
| | | 212NS+63 | - | 229NS+39 | -- | -- | -- | 4.1 | 98 | -- | 8 | 87 | -- | -- | -- | 117.2 | 6,435 |
| | | 230NS+36 | - | 238NS+48 | -- | -- | -- | 2.5 | 68 | -- | 2 | 55 | -- | -- | -- | 27.8 | 4,020 |
| | | 280NS+43 | - | 284NS+72 | -- | -- | -- | 1.4 | 41 | -- | -- | 31 | -- | -- | -- | -- | 2,226 |
| | | 290NS+39 | - | 291NS+19 | -- | -- | .5 | -- | -- | 4 | -- | 12 | -- | -- | -- | 94.9 | 845 |
| | | 294NS+00 | - | 302NS+70 | -- | -- | -- | .5 | -- | 3 | -- | 11 | -- | -- | -- | 88.8 | 791 |
| | IH 94 EB | | | | | | | | | | | | | | | | |
| | | 88EW+00 | - | 99EW+45 | -- | .2 | -- | 1.1 | -- | 7 | -- | 24 | -- | -- | -- | 194.8 | 1,735 |
| | | 102EW+17 | - | 111EW+66 | -- | .2 | -- | 1.0 | 3 | -- | 11 | 22 | -- | -- | -- | 162.3 | 1,582 |
| | | 112EW+73 | - | 128EW+60 | -- | -- | -- | 3.1 | 17 | -- | 30 | 67 | -- | -- | -- | 455.0 | 4,960 |
| | | 132EW+30 | - | 133EW+89 | -- | -- | -- | .3 | -- | -- | 4 | 7 | -- | -- | -- | 56.7 | 505 |
| | | 136EW+53 | - | 140EW+93 | -- | -- | -- | 1.0 | 29 | -- | -- | 22 | -- | -- | -- | -- | 1,602 |
| | | 175EW+40 | - | 189EW+78 | -- | -- | 3.0 | 5.5 | -- | 49 | -- | 183 | -- | -- | -- | 1,516.6 | 13,505 |
| | | 192EW+07 | - | 198EW+65 | -- | -- | -- | 3.1 | 90 | -- | -- | 68 | -- | -- | -- | -- | 4,969 |
| | IH 94 WB | | | | | | | | | | | | | | | | |
| | | 88EW+00 | - | 99EW+34 | -- | .2 | -- | 1.1 | -- | 7 | -- | 24 | -- | -- | -- | 191.9 | 1,709 |
| | | 102EW+08 | - | 111EW+62 | -- | .2 | -- | 1.0 | 3 | -- | 11 | 23 | -- | -- | -- | 168.6 | 1,641 |
| | | 112EW+73 | - | 124EW+91 | -- | -- | -- | 3.1 | 12 | -- | 31 | 66 | -- | -- | -- | 474.3 | 4,867 |
| | | 127EW+00 | - | 131EW+68 | -- | -- | -- | .7 | 18 | -- | 1 | 15 | -- | -- | -- | 9.4 | 1,038 |
| | | 135EW+87 | - | 154EW+16 | -- | -- | -- | 3.7 | 106 | -- | -- | 80 | -- | -- | -- | -- | 5,873 |
| | | 171EW+42 | - | 175EW+11 | -- | -- | -- | .4 | 12 | -- | -- | 9 | -- | -- | -- | -- | 627 |
| | | 177EW+88 | - | 189EW+58 | -- | -- | -- | 6.2 | -- | 36 | -- | 134 | -- | -- | -- | 1,108.0 | 9,866 |
| | | 193EW+92 | - | 204EW+34 | -- | -- | -- | 5.3 | 153 | -- | -- | 115 | -- | -- | -- | -- | 8,466 |
| | **RAMPS** | | | | | | | | | | | | | | | | |
| | RAMP WS | | | | | | | | | | | | | | | | |
| | | 540WS+90 | - | 553WS+08 | -- | -- | -- | 6.0 | 173 | -- | -- | 130 | -- | -- | -- | -- | 9,560 |
| | | 560WS+02 | - | 566WS+05 | -- | -- | -- | .8 | 25 | -- | -- | 19 | -- | -- | -- | -- | 1,346 |
| | RAMP WN | | | | | | | | | | | | | | | | |
| | | 598WN+17 | - | 605WN+60 | -- | -- | -- | 4.9 | 43 | 20 | -- | 105 | -- | -- | -- | 605.4 | 7,734 |
| | RAMP EN | | | | | | | | | | | | | | | | |
| | | 523EN+58 | - | 534EN+71 | -- | -- | -- | 12.9 | 339 | 7 | -- | 278 | -- | -- | -- | 192.2 | 20,538 |
| | | 536EN+02 | - | 538EN+82 | -- | -- | -- | .4 | 11 | -- | -- | 8 | -- | -- | -- | -- | 584 |
| | RAMP SE | | | | | | | | | | | | | | | | |
| | | 587SE+07 | - | 594SE+10 | -- | -- | -- | 4.6 | 132 | -- | -- | 99 | -- | -- | -- | -- | 7,328 |

(3)

(1)

Addendum No. 03
ID 1060-33-81
Revised Sheet 1812
September 14, 2015

(CONTINUED ON NEXT SHEET)

## RESTORATION ITEMS (CONTINUED)

| CATEGORY | LOCATION | STATION | TO | STATION | 628.6505 SOIL STABILIZER TYPE A ACRE | 628.6510 SOIL STABILIZER TYPE B ACRE | 629.0205 FERTILIZER TYPE A CWT | 629.0210 FERTILIZER TYPE B CWT | 630.0130 SEEDING MIXTURE NO. 30 LB | 630.0171 SEEDING MIXTURE NO. 70A LB | 630.0180 SEEDING MIXTURE NO. 80 LB | 630.0200 SEEDING TEMPORARY LB | 631.0300 SOD WATER MGAL | 631.1000 SOD LAWN SY | SPV.0085.0200 SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX LB | SPV.0120.0001 SEEDING WATER MGAL | SPV.0180.0200 TOPSOIL SPECIAL SY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1000 | RAMP LA | 703LA+25 | - | 717LA+90 | -- | -- | -- | 6.3 | 180 | -- | -- | 135 | .1 | 4 | -- | .5 | 9,966 |
| | RAMP LD | 708LD+03 | - | 712LD+62 | -- | -- | -- | 1.4 | 42 | -- | -- | 31 | -- | -- | -- | -- | 2,296 |
| | RAMP GA | 755GA+64 | - | 762GA+38 | -- | -- | -- | .9 | 26 | -- | -- | 20 | -- | -- | -- | -- | 1,424 |
| | RAMP GB | 740GB+36 | - | 752GB+03 | -- | -- | -- | 3.8 | 109 | -- | -- | 82 | -- | -- | -- | -- | 6,032 |
| | RAMP GC | 738GC+46 | - | 751GC+72 | -- | -- | -- | 2.5 | 71 | -- | -- | 54 | -- | -- | -- | -- | 3,935 |
| | RAMP GD | 755GD+28 | - | 761GD+58 | -- | -- | -- | .8 | 22 | -- | -- | 17 | -- | -- | -- | -- | 1,198 |
| | | 764GD+66 | - | 774GD+00 | -- | -- | -- | 1.2 | 32 | -- | -- | 24 | 3.2 | 141 | -- | 15.9 | 1,869 |
| | | 780GD+50 | - | 784GD+71 | -- | -- | -- | 1.4 | 41 | -- | -- | 31 | -- | -- | -- | -- | 2,241 |
| | | 786GD+67 | - | 791GD+07 | -- | -- | 3.3 | .2 | -- | 21 | -- | 76 | -- | -- | -- | 627.5 | 5,588 |
| | RAMP GE | 764GE+53 | - | 780GE+15 | -- | -- | -- | 3.2 | 91 | -- | -- | 69 | -- | -- | -- | -- | 5,054 |
| | | 780GE+68 | - | 785GE+46 | -- | -- | -- | 2.2 | 63 | -- | -- | 47 | -- | -- | -- | -- | 3,463 |
| | | 786GE+58 | - | 789GE+95 | -- | -- | -- | 3.1 | -- | 18 | -- | 67 | -- | -- | -- | 551.8 | 4,914 |
| | RAMP BA | 724BA+59 | - | 734BA+18 | -- | -- | -- | 5.4 | 63 | -- | 37 | 116 | -- | -- | -- | 565.2 | 8,526 |
| | RAMP BB | 799BB+60 | - | 804BB+61 | -- | -- | -- | 3.4 | 14 | 34 | -- | 74 | -- | -- | -- | 529.9 | 5,461 |
| | | 806BB+93 | - | 822BB+48 | -- | -- | -- | 6.3 | 181 | -- | -- | 136 | -- | -- | -- | -- | 10,040 |
| | RAMP BC | 702BC+52 | - | 720BC+92 | -- | -- | -- | 1.5 | 44 | -- | -- | 33 | -- | -- | -- | -- | 2,416 |
| | RAMP WJ | 746WJ+48 | - | 750WJ+38 | -- | -- | -- | .6 | 17 | -- | -- | 13 | -- | -- | -- | -- | 894 |
| | RAMP SA | 563SA+28 | - | 571SA+28 | -- | -- | -- | .9 | 25 | -- | -- | 19 | -- | -- | -- | -- | 1,367 |
| | | 573SA+03 | - | 577SA+88 | -- | -- | -- | .3 | 8 | -- | -- | 6 | -- | -- | -- | -- | 432 |
| | RAMP SB | 548SB+71 | - | 575SB+30 | -- | -- | -- | 5.0 | 121 | 5 | -- | 107 | -- | -- | -- | 133.8 | 7,883 |
| | RAMP SC | 533SC+89 | - | 538SC+00 | -- | -- | -- | .2 | 4 | -- | 2 | 6 | -- | -- | -- | 23.6 | 388 |
| | RAMP SD | 531SD+76 | - | 546SD+15 | -- | -- | -- | 3.5 | 51 | -- | 20 | 75 | -- | -- | -- | 308.9 | 5,535 |

1

3

(CONTINUED ON NEXT SHEET)

Addendum No. 03
ID 1060-33-81
Revised Sheet 1813
September 14, 2015

## RESTORATION ITEMS (CONTINUED)

| CATEGORY | LOCATION | STATION | TO | STATION | 628.6505 SOIL STABILIZER TYPE A ACRE | 628.6510 SOIL STABILIZER TYPE B ACRE | 629.0205 FERTILIZER TYPE A CWT | 629.0210 FERTILIZER TYPE B CWT | 630.0130 SEEDING MIXTURE NO. 30 LB | 630.0171 SEEDING MIXTURE NO. 70A LB | 630.0180 SEEDING MIXTURE NO. 80 LB | 630.0200 SEEDING TEMPORARY LB | 631.0300 SOD WATER MGAL | 631.1000 SOD LAWN SY | SPV.0085.0200 SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX LB | SPV.0120.0001 SEEDING WATER MGAL | SPV.0180.0200 TOPSOIL SPECIAL SY | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1000 | RAMP FC | | | | | | | | | | | | | | | | | |
| | | 789FC+81 | - | 802FC+15 | -- | -- | -- | 6.9 | 199 | -- | -- | 149 | -- | -- | -- | -- | 11,025 | |
| | RAMP FH | | | | | | | | | | | | | | | | | |
| | | 789FH+56 | - | 806FH+55 | -- | -- | -- | 10.4 | 48 | 51 | -- | 224 | -- | -- | -- | 1,568.0 | 16,582 | 1 |
| | **LOCAL ROADS** | | | | | | | | | | | | | | | | | |
| | W. SCHLINGER AVENUE | | | | | | | | | | | | | | | | | |
| | | 525SCH+60 | - | 533SCH+10 | -- | -- | -- | .2 | -- | -- | -- | -- | 6.2 | 276 | -- | 31.0 | 276 | |
| | S. 100TH STREET | | | | | | | | | | | | | | | | | |
| | | 12TD+42 | - | 19TD+27 | -- | -- | -- | .6 | -- | -- | -- | -- | 20.0 | 889 | -- | 99.8 | 889 | |
| | | 30TD+49 | - | 37TD+07 | -- | -- | -- | .5 | -- | -- | -- | -- | 17.6 | 782 | -- | 87.8 | 782 | |
| | | 37TD+76 | - | 42TD+33 | -- | -- | -- | .7 | 15 | -- | -- | 12 | 8.1 | 359 | -- | 40.4 | 1,175 | |
| | | 17TE+00 | - | 21TE+10 | -- | -- | -- | .1 | -- | -- | -- | -- | 3.2 | 141 | -- | 15.8 | 141 | |
| | W. WISCONSIN AVENUE | | | | | | | | | | | | | | | | | |
| | | 19WX+98 | - | 27WX+13 | -- | -- | -- | 1.7 | 6 | -- | -- | 5 | 53.3 | 2,372 | -- | 266.4 | 2,701 | 1 |
| | | 30WX+07 | - | 36WX+92 | -- | -- | -- | 1.2 | 11 | -- | -- | 8 | 29.2 | 1,301 | -- | 146.0 | 1,876 | |
| | N. 97TH STREET | | | | | | | | | | | | | | | | | |
| | | 46TT+13 | | 49TT+58 | -- | -- | -- | .4 | -- | -- | -- | -- | 12.6 | 561 | -- | 63.0 | 561 | |
| | N. 95TH STREET | | | | | | | | | | | | | | | | | |
| | | 48TRN+50 | | 49TRN+59 | -- | -- | -- | .1 | -- | -- | -- | -- | 4.0 | 176 | -- | 19.8 | 176 | |
| | | 50TRN+52 | - | 50TRN+94 | -- | -- | -- | -- | -- | -- | -- | -- | .8 | 37 | -- | 4.2 | 37 | |
| | S.CURTIS ROAD | | | | | | | | | | | | | | | | | |
| | | 11CT+33 | | 13CT+98 | -- | -- | -- | .1 | 3 | -- | -- | 3 | -- | -- | -- | -- | 148 | |
| | UTILITY ACCESS PATH | | | | | | | | | | | | | | | | | |
| | | 10XM+12 | - | 24XM+70 | -- | -- | -- | 2.5 | 71 | -- | 1 | 55 | -- | -- | -- | 13.7 | 4,037 | |
| | HANK AARON STATE TRAIL | | | | | | | | | | | | | | | | | |
| | | 111HA+34 | - | 193HA+13 | -- | -- | -- | 10.5 | 301 | -- | -- | 226 | -- | -- | -- | -- | 16,716 | |
| | BIKE PATH A | | | | | | | | | | | | | | | | | |
| | | 10BPA+08 | - | 13BPA+17 | -- | -- | -- | .8 | -- | 5 | -- | 17 | -- | -- | -- | 139.1 | 1,239 | |
| | BIKE PATH B | | | | | | | | | | | | | | | | | |
| | | 10BPB+15 | - | 17BPB+33 | -- | -- | -- | 2.8 | 58 | -- | 10 | 61 | -- | -- | -- | 145.0 | 4,476 | |
| | RAMP BD GRADING | | | | | | | | | | | | | | | | | |
| | | 729BD+89 | - | 733BD+98 | -- | -- | -- | 2.3 | 67 | -- | -- | 50 | -- | -- | -- | -- | 3,702 | |
| | BURLEIGH BOOSTER STATION | | | | | | | | | | | | | | | | | |
| | | UTILITY WORK | | | -- | -- | -- | .4 | -- | -- | -- | -- | 15.9 | 709 | -- | 79.6 | 709 | |
| | NW INFIELD | | | | | | | | | | | | | | | | | |
| | | 484NW+14 | - | 491NW+70 | -- | -- | -- | 9.0 | -- | 52 | -- | 194 | -- | -- | -- | 1,608.4 | 14,322 | |
| | | | | | | | | | | | | 1 | | | 3 | | | |

(CONTINUED ON NEXT SHEET)

Addendum No. 03
ID 1060-33-81
Revised Sheet 1814
September 14, 2015

## RESTORATION ITEMS (CONTINUED)

| CATEGORY | LOCATION | STATION | TO | STATION | 628.6505 SOIL STABILIZER TYPE A ACRE | 628.6510 SOIL STABILIZER TYPE B ACRE | 629.0205 FERTILIZER TYPE A CWT | 629.0210 FERTILIZER TYPE B CWT | 630.0130 SEEDING MIXTURE NO. 30 LB | 630.0171 SEEDING MIXTURE NO. 70A LB | 630.0180 SEEDING MIXTURE NO. 80 LB | 630.0200 SEEDING TEMPORARY LB | 631.0300 SOD WATER MGAL | 631.1000 SOD LAWN SY | SPV.0085.0200 SEEDING MIXTURE NATIVE SEED BUTTERFLY MIX LB | SPV.0120.0001 SEEDING WATER MGAL | SPV.0180.0200 TOPSOIL SPECIAL SY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1000 | SW CORE POND | 10PSW+00 | - | 14PSW+98 | -- | .8 | 7.3 | -- | -- | 42 | -- | 156 | -- | -- | -- | 1,296.1 | 11,541 |
| | TEMP POND | 180EW+50 | - | 185EW+96 | -- | 1.4 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | TEMP CHANNEL | 11PSW+14 | - | 13PSW+34 | -- | .9 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | SUBTOTALS | | | | -- | 3.7 | 14.1 | 220.2 | 4,309 | 399 | 176 | 4,961 | 174.2 | 7,748 | -- | 15,115 | 372,415 |
| | UNDISTRIBUTED | | | | 1.0 | 15.0 | 1.4 | 22.0 | 431 | 40 | 18 | 496 | 17.4 | 775 | -- | 1,512 | -- |
| | TOTALS | | | | 1.0 | 18.7 | 15.5 | 242.2 | 4,740 | 439 | 194 | 5,457 | 191.6 | 8,523 | -- | 16,627 | 372,415 |

1

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 1815
September 14, 2015

## SEEDING ESTABLISHMENT

| CATEGORY | STAGE | LOCATION | SPV.0105.0055 SEEDING ESTABLISHMENT LS |
|---|---|---|---|
| 1000 | ALL | PROJECT | 1 |
| | | TOTAL | 1 |

3

## ROOT STOCK

| CATEGORY | LOCATION | SPV.0005.0001 ROOT STOCK PROTECTION ACRE | SPV.0060.0013 SHALLOW MARSH ROOTSTOCK EACH |
|---|---|---|---|
| | **MAINLINE** | | |
| 1000 | SW CORE POND | 0.1 | 130 |
| | TOTAL | 0.1 | 130 |

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | MISCELLANEOUS QUANTITIES | SHEET: 1815 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\030203_mq_misc.ppt PLOT DATE : 9/10/2015 1:20:30 PM PLOT BY : MSCCEJ PLOT NAME : 030203_mq_misc25 PLOT SCALE : 1:1

Addendum No. 03
ID 1060-33-81
Revised Sheet 1958
September 14, 2015

2

LIGHTING - REMOVAL *(CONTINUED)*

| CATEGORY | STAGE | DESCRIPTION | LOCATION | 204.0195* REMOVING CONCRETE BASES EACH | SPV.0060.1010 LAMP DISPOSAL HIGH INTENSITY DISCHARGE EACH | SPV.0060.1019 RELOCATING LIGHT POLES ARMS AND LUMINAIRES EACH | SPV.0060.1031 REMOVING ALUMINUM LIGHT POLES AND ARMS-WAUWATOSA EACH | SPV.0060.1032 REMOVING CONCRETE LIGHT POLES AND ARMS-WAUWATOSA EACH | SPV.0060.1033 REMOVING ALUMINUM LIGHT POLES, ARMS AND LUMINAIRES EACH | SPV.0060.1040* REMOVING POLES WOOD 60-FOOT AND FLOODLIGHTS EACH | SPV.0060.1041* REMOVING POLES WOOD 60-FOOT EACH | SPV.0060,1066 SALVAGING LUMINAIRE LED - DOT EACH | SPV.0105.1006 MAINTENANCE OF LIGHTING SYSTEMS LS | SPV.0105.1007 LIGHTING SYSTEM INTEGRATOR LS | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1100 | 9 | T-BZT-1 | STA. 296NS+15, 151' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | WAS T-EZW-02 |
| | | WP-ZT-5 | STA. 487NW+15, 70' RT | -- | -- | -- | -- | -- | -- | -- | 1 | -- | -- | -- | WAS WP-ZW-06 |
| | | T-AZT-1 | STA. 485NW+85, 50' RT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | WAS T-FZW-01 |
| | | T-H'WB-4 | STA. 317NS+45, 169' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-K'WB-3 | STA. 319NS+32, 165' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-J'WB-3 | STA. 320NS+82, 165' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | WP-WB-02 | STA. 321NS+48, 198' LT | -- | -- | -- | -- | -- | -- | -- | 1 | -- | -- | -- | |
| 1100 | 9 | T-H'WB-3 | STA. 323NS+18, 205' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-K'WB-2/T-J'WB-2 | STA. 325NS+89, 215' LT | -- | 2 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-H'WB-2 | STA. 328NS+29, 205' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-K'WB-1 | STA. 330NS+42, 189' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-J'WB-1 | STA. 332NS+75, 155' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | WP-LE-7 | STA. 148EW+13, 230' LT | -- | -- | -- | -- | -- | -- | -- | 1 | -- | -- | -- | |
| | | WP-LE-6 | STA. 148EW+29, 387' LT | -- | -- | -- | -- | -- | -- | -- | 1 | -- | -- | -- | |
| | | WP-LE-5 | STA. 150EW+12, 584' LT | -- | -- | -- | -- | -- | -- | -- | 1 | -- | -- | -- | |
| | | WP-LE-4 | STA. 149EW+78, 654' LT | -- | -- | -- | -- | -- | -- | -- | 1 | -- | -- | -- | |
| | | T-ALE-1 | STA. 150EW+05, 159' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-CLE-1 | STA. 149EW+25, 128' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-ALE-2 | STA. 151EW+60, 166' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | WP-LE-9 | STA. 152EW+91, 153' LT | -- | -- | -- | -- | -- | -- | -- | 1 | -- | -- | -- | |
| | | T-ALE-3 | STA. 153EW+67, 161' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | WP-LE-8 | STA. 155EW+61, 164' LT | -- | -- | -- | -- | -- | -- | -- | 1 | -- | -- | -- | |
| | | T-FLE-1 | STA. 156EW+12, 150' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-GLE-1 | STA. 157EW+62, 150' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-FLE-2 | STA. 159EW+15, 175' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-GLE-2 | STA. 161EW+10, 170' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-FLE-3 | STA. 163EW+51, 179' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-GLE-3 | STA. 166EW+01, 180' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-GLE-4 | STA. 170EW+89, 144' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | 3 | T-BZT-4 | STA. 483NW+79, 51' RT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | WAS T-EZW-01 |
| | | WP-WB-01 | STA. 333NS+28, 198' RT | -- | -- | -- | -- | -- | -- | -- | 1 | -- | -- | -- | |
| | | T-EUN-8 | STA. 86EW+01.9, 94.8' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-FUN-7 | STA. 88EW+19.8, 94.7' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-EUN-7 | STA. 90EW+02.9, 99.0' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-FUN-6 | STA. 92EW+02.8, 102.9' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-EUN-6 | STA. 94EW+02.7, 109.8' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-FUN-5 | STA. 96EW+02.4, 112.3' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-EUN-5 | STA. 98EW+02.5, 117.2' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-FUN-4 | STA. 98EW+99.8, 118.6' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | WP-UN-5 | STA. 100EW+80.1, 120.2' LT | -- | 1 | -- | -- | -- | -- | -- | 1 | -- | -- | -- | |
| | | T-EUN-2/T-FUN-2 | STA. 98EW+75.2, 153.8' RT | -- | 2 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | WP-UN-3 | STA. 100EW+62.3, 149.1' RT | -- | 1 | -- | -- | -- | -- | -- | 1 | -- | -- | -- | |
| | | T-EUN-1/T-FUN-1 | STA. 102EW+82.7, 142.3' RT | -- | 2 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-EUN-4/T-FUN-3 | STA. 102EW+48.7, 121.0' LT | -- | 2 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | WP-UN-2 | STA. 103EW+25.3, 119.6' LT | -- | 1 | -- | -- | -- | -- | -- | 1 | -- | -- | -- | |

LIGHTING - REMOVAL *(CONTINUED)*

| CATEGORY | STAGE | DESCRIPTION | LOCATION | 204.0195* REMOVING CONCRETE BASES EACH | SPV.0060.1010 LAMP DISPOSAL HIGH INTENSITY DISCHARGE EACH | SPV.0060.1019 RELOCATING LIGHT POLES ARMS AND LUMINAIRES EACH | SPV.0060.1031 REMOVING ALUMINUM LIGHT POLES AND ARMS-WAUWATOSA EACH | SPV.0060.1032 REMOVING CONCRETE LIGHT POLES AND ARMS-WAUWATOSA EACH | SPV.0060.1033 REMOVING ALUMINUM LIGHT POLES, ARMS AND LUMINAIRES EACH | SPV.0060.1040* REMOVING POLES WOOD 60-FOOT AND FLOODLIGHTS EACH | SPV.0060.1041* REMOVING POLES WOOD 60-FOOT EACH | SPV.0060,1066 SALVAGING LUMINAIRE LED - DOT EACH | SPV.0105.1006 MAINTENANCE OF LIGHTING SYSTEMS LS | SPV.0105.1007 LIGHTING SYSTEM INTEGRATOR LS | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1100 | 9 | T-EUN-3 | STA. 104EW+91.2, 121.0' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-GUN-1 | STA. 106EW+91.8, 120.9' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-HUN-1 | STA. 108EW+92.2, 120.5' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-GUN-2 | STA. 111EW+04.9, 120.4' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-HUN-2 | STA. 113EW+34.7, 118.3' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-GUN-3 | STA. 114EW+23.8, 126.1' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-HUN-3 | STA. 116EW+22.6, 120.0' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-GUN-4 | STA. 118EW+21.4, 128.0' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-HUN-4 | STA. 120EW+15.9, 121.5' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-HUN-5/T-GUN-5 | STA. 122EW+12.6, 132.1' LT | -- | 2 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-CLE-4 | STA. 536SD+38.7, 51.4' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-DLE-4 | STA. 534SD+43.2, 58.2' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-CLE-5 | STA. 532SD+46.6, 59.4' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-DLE-5 | STA. 530SD+48.4, 56.3' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-CLE-6/T-DLE-6 | STA. 117HA+34.8, 131.3' LT | -- | 2 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-CLE-7 | STA. 115HA+56.6, 38.1' LT | -- | 1 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | |
| 1100 | 9 | | SUBTOTAL | 0 | 58 | 0 | 0 | 0 | 0 | 49 | 12 | 0 | 0 | 0 | |
| 1100 | | | TOTALS | 115 | 325 | 6 | 3 | 6 | 111 | 76 | 25 | 6 | 1 | 1 | |

* = ADDITIONAL QUANTITIES SHOWN ELSEWHERE

NOTES

1. SEE ELSEWHERE FOR POLE & BASE REMOVAL.

Addendum No. 03
ID 1060-33-81
Added Sheet 1958A
September 14, 2015

## LIGHTING AND MISCELLANEOUS - TEMPORARY

| CATEGORY | STAGE | DESCRIPTION | LOCATION | SPV.0060.1035 WOOD POLE LIGHTING 60-FOOT EACH | SPV.0060.1036* POLES WOOD 60-FOOT EACH | SPV.0060.1037 POLES WOOD 35-FOOT EACH | SPV.0060.1040* REMOVING POLES WOOD 60-FOOT AND FLOODLIGHTS EACH | SPV.0060.1041* REMOVING POLES WOOD 60-FOOT EACH | SPV.0060.1042 REMOVING POLES WOOD 35-FOOT EACH | SPV.0060.1043 REMOVING POLES WOOD 35-FOOT AND FLOODLIGHTS EACH | SPV.0060.1070 LUMINAIRES FLOODLIGHT 1000W HPS EACH | SPV.0060.1071 LUMINAIRES FLOODLIGHT 400W HPS EACH | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1100 | 1 | | | | | | | | | | | | |
| | | T-DLC-3 | STA. 191NS+34.1, 125.2' LT | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-CLC-3 | STA. 193NS+28.8, 110.0' LT | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-DLC-2 | STA. 195NS+23.4, 109.4' LT | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-CLC-2 | STA. 197NS+18.3, 123.5' LT | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-DLC-1 | STA. 199NS+10.7, 110.5' LT | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-CLC-1 | STA. 201NS+30.4, 112.6' LT | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | WP-LC-1 | STA. 200NS+72.9, 83.5' RT | -- | 1 | -- | -- | 1 | -- | -- | -- | -- | |
| | | WP-LC-2 | STA. 200NS+71.1, 76.0' LT | -- | 1 | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-ALC-1 | STA. 203NS+48.2, 97.7' LT | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |

3

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 1959
September 14, 2015

(CONTINUED ON NEXT SHEET)

## LIGHTING AND MISCELLANEOUS - TEMPORARY *(CONTINUED)*

| CATEGORY | STAGE | DESCRIPTION | LOCATION | | SPV.0060.1035 WOOD POLE LIGHTING 60-FOOT EACH | SPV.0060.1036* POLES WOOD 60-FOOT EACH | SPV.0060.1037 POLES WOOD 35-FOOT EACH | SPV.0060.1040* REMOVING POLES WOOD 60-FOOT AND FLOODLIGHTS EACH | SPV.0060.1041* REMOVING POLES WOOD 60-FOOT EACH | SPV.0060.1042 REMOVING POLES WOOD 35-FOOT EACH | SPV.0060.1043 REMOVING POLES WOOD 35-FOOT AND FLOODLIGHTS EACH | SPV.0060.1070 LUMINAIRES FLOODLIGHT 1000W HPS EACH | SPV.0060.1071 LUMINAIRES FLOODLIGHT 400W HPS EACH | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1100 | 1 | T-BLC-1 | STA. 205NS+45.2, 99.2' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | WP-LC-03 | STA. 706LD+89.4, 33.4' RT | | -- | 1 | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-ALC-2/T-BLC-6 | STA. 708LD+23.4, 39.0' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | 1 | |
| | | T-BLC-2 | STA. 710LD+22.9, 28.1' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-ALC-3 | STA. 712LD+28.4, 28.8' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-BLC-3 | STA. 714LD+24.9, 55.8' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-ALC-4 | STA. 216NS+27.2, 98.8' LT | | 1 | -- | -- | 1 | -- | -- | -- | -- | 1 | |
| | | T-BLC-4 | STA. 218NS+23.0, 100.1' LT | | 1 | -- | -- | 1 | -- | -- | -- | -- | 1 | |
| | | T-ALC-5 | STA. 220NS+20.6, 128.6' LT | | 1 | -- | -- | 1 | -- | -- | -- | -- | 1 | |
| | | T-BLC-5 | STA. 222NS+12.7, 150.0' LT | | 1 | -- | -- | 1 | -- | -- | -- | -- | 1 | |
| | | T-D'GD-4 | STA. 224NS+16.9, 122.0' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-F'GD-3 | STA. 226NS+14.6, 119.8' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-E'GD-3 | STA. 228NS+15.6, 116.1' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-D'GD-3 | STA. 230NS+24.0, 108.4' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | WP-GD-2 | STA. 231NS+23.4, 108.4' LT | | -- | -- | 1 | -- | -- | 1 | -- | -- | -- | |
| | | WP-GD-3 | STA. 230NS+68.0, 108.4' LT | | -- | -- | 1 | -- | -- | 1 | -- | -- | -- | |
| | | T-F'GD-2 | STA. 232NS+16.4, 109.6' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-E'GD-2/T-'D'GD-2 | STA. 234NS+19.3, 117.3' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | 1 | |
| | | T-F'GD-1 | STA. 736GC+20.6, 29.8' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-E'GD-1 | STA. 738GC+20.3, 33.8' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-D'GD-1 | STA. 740GC+05.7, 28.7' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | WP-GD-1 | STA. 740GC+69.0, 47.0' LT | | -- | 1 | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-A'GD-1 | STA. 742GC+18.6, 30.6' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-B'GD-1 | STA. 743GC+49.3, 27.4' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-C'GD-1 | STA. 745GC+63.0, 53.4' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-A'GD-2 | STA. 747GC+43.0, 48.7' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-B'GD-2 | STA. 749GC+23.6, 36.3' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-C'GD-2 | STA. 751GC+19.6, 37.3' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | WP-GD-4 | STA. 752GC+49.4, 82.0' LT | | -- | 1 | -- | -- | 1 | -- | -- | -- | -- | |
| | | WP-GD-5 | STA. 754GD+43.9, 68.0' LT | | -- | 1 | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-A'GD-3 | STA. 755GD+53.8, 20.1' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-B'GD-3 | STA. 257NS+50.0, 115.5' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-C'GD-3 | STA. 759GD+72.3, 35.2' RT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-A'GD-4 | STA. 761GD+17.8, 38.6' RT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-B'GD-4 | STA. 762GD+71.8, 22.4' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-C'GD-4 | STA. 764GD+72.4, 23.9' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-A'GD-5 | STA. 766GD+68.9, 21.7' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-B'GD-5 | STA. 768GD+68.5, 22.2' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-C'GD-5 | STA. 770GD+66.9, 22.2' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | WP-GD-6 | STA. 771GD+94.4, 22.3' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-A'GD-6/T-B'GD-6 | STA. 272NS+07.5, 28.0' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | 1 | |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 1960
September 14, 2015

*(CONTINUED ON NEXT SHEET)*

Addendum No. 03
ID 1060-33-81
Revised Sheet 1961
September 14, 2015

2

## LIGHTING AND MISCELLANEOUS - TEMPORARY *(CONTINUED)*

| CATEGORY | STAGE | DESCRIPTION | LOCATION | | SPV.0060.1035 WOOD POLE LIGHTING 60-FOOT EACH | SPV.0060.1036* POLES WOOD 60-FOOT EACH | SPV.0060.1037 POLES WOOD 35-FOOT EACH | SPV.0060.1040* REMOVING POLES WOOD 60-FOOT AND FLOODLIGHTS EACH | SPV.0060.1041* REMOVING POLES WOOD 60-FOOT EACH | SPV.0060.1042 REMOVING POLES WOOD 35-FOOT EACH | SPV.0060.1043 REMOVING POLES WOOD 35-FOOT AND FLOODLIGHTS EACH | SPV.0060.1070 LUMINAIRES FLOODLIGHT 1000W HPS EACH | SPV.0060.1071 LUMINAIRES FLOODLIGHT 400W HPS EACH | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1100 | 1 | T-C'GD-6/T-A'GD-7 | STA. 273NS+57.0, 23.1' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | 1 | |
| | | T-B'GD-7/T-C'GD-7 | STA. 275NS+06.7, 17.2' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | 1 | |
| | | T-A'GD-8/T-B'GD-8 | STA. 276NS+55.4, 21.0' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | 1 | |
| | | T-C'GD-8/T-A'GD-9 | STA. 278NS+04.3, 19.6' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | 1 | |
| | | T-B'GD-9/T-C'GD-9 | STA. 279NS+52.3, 26.5' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | 1 | |
| | | T-A'GD-10/T-B'GD-10 | STA. 280NS+99.8, 27.7' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | 1 | |
| | | T-ETA-4/T-FTA-4 | STA. 756GA+35.4, 54.0' LT | | -- | -- | 1 | -- | -- | -- | 1 | -- | 2 | |
| | | T-ETA-3/T-FTA-3 | STA. 757GA+43.6, 46.15' LT | | -- | -- | 1 | -- | -- | -- | 1 | -- | 2 | |
| | | T-ETA-2/T-FTA-2 | STA. 758GA+39.4, 67.6' LT | | -- | -- | 1 | -- | -- | -- | 1 | -- | 2 | |
| | | T-ETA-1/T-FTA-1 | STA. 759GA+74.1, 24.7' LT | | -- | -- | 1 | -- | -- | -- | 1 | -- | 2 | |
| | | T-DTA-4 | STA. 761GA+3.8, 74.8' LT | | -- | -- | 1 | -- | -- | -- | 1 | -- | 1 | |
| | | T-CTA-4 | STA.762GA+92.1, 49.6' LT | | -- | -- | 1 | -- | -- | -- | 1 | -- | 1 | |
| | | WP-TA-7 | STA. 764GA+9.0, 34.2 LT | | -- | -- | 1 | -- | -- | 1 | -- | -- | -- | |
| | | T-DTA-3 | STA. 764GE+30.8, 13.1' RT | | -- | -- | 1 | -- | -- | -- | 1 | -- | 1 | |
| | | T-CTA-3 | STA. 765GE+57.1, 12.6' RT | | -- | -- | 1 | -- | -- | -- | 1 | -- | 1 | |
| | | T-DTA-2 | STA. 766GE+75.2, 17.1' RT | | -- | -- | 1 | -- | -- | -- | 1 | -- | 1 | |
| | | T-CTA-2 | STA. 767GE+92.4, 20.2' RT | | -- | -- | 1 | -- | -- | -- | 1 | -- | 1 | |
| | | T-DTA-1 | STA. 769GE+14.0, 17.6' RT | | -- | -- | 1 | -- | -- | -- | 1 | -- | 1 | |
| | | T-CTA-1 | STA. 770GE+38.9, 17.2' RT | | -- | -- | 1 | -- | -- | -- | 1 | -- | 1 | |
| | | WP-TA-6 | STA. 771GE+98.8, 14.1' RT | | -- | -- | 1 | -- | -- | 1 | -- | -- | -- | |
| | | WP-TA-5 | STA. 773GE+81.3, 22.8' RT | | -- | -- | 1 | -- | -- | 1 | -- | -- | -- | |
| | | WP-TA-4 | STA. 775GE+95.5, 23.3' RT | | -- | -- | 1 | -- | -- | 1 | -- | -- | -- | |
| | | WP-TA-3 | STA. 777GE+92.1, 23.5' RT | | -- | -- | 1 | -- | -- | 1 | -- | -- | -- | |
| | | WP-TA-2 | STA. 779GE+75.0, 21.1' RT | | -- | -- | 1 | -- | -- | 1 | -- | -- | -- | |
| | | WP-TA-1 | STA. 781GE+37.5, 28.4' RT | | -- | -- | 1 | -- | -- | 1 | -- | -- | -- | |
| | | T-DZN-2 | STA. 804BB+32.6, 45.3' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-CZN-2 | STA. 803BB+54.8, 39.9' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-DZN-1 | STA. 802BB+58.6, 35.4' RT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-CZN-1 | STA. 801BB+03.1, 26.8' RT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | WP-ZN-2 | STA. 529EN+49.8, 132.3' LT | | -- | 1 | -- | -- | 1 | -- | -- | -- | -- | |
| | | WP-ZN-1 | STA. 529EN+09.6, 63.6' RT | | -- | 1 | -- | -- | 1 | -- | -- | -- | -- | |
| | | WP-ZE-1 | STA. 802FH+56.8, 51.8' LT | | -- | 1 | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-CZE-1 | STA. 804FH+58.2, 41.7' LT | | 1 | -- | -- | -- | 1 | -- | -- | 1 | -- | |
| | | T-DZE-1 | STA. 801FH+84.5, 87.2' LT | | -- | -- | 1 | -- | -- | 1 | -- | -- | 1 | |
| | | T-AZT-4 | STA. 486NW+51.0, 81.0' LT | 3 | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-AZT-2 | STA. 294NS+51.3, 122.2' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-BZT-3 | STA. 490NW+06.5, 105.6' RT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-AZT-3 | STA. 297NS+73.8, 115.0' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-BZT-2 | STA. 296NS+41.3, 107.7' LT | | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-AZT-1 | STA. 486NW+52.0, 126.8' LT | | -- | -- | -- | -- | -- | -- | -- | -- | -- | EXISTING |

3

3

*(CONTINUED ON NEXT SHEET)*

## LIGHTING AND MISCELLANEOUS - TEMPORARY *(CONTINUED)*

| CATEGORY | STAGE | DESCRIPTION | LOCATION | SPV.0060.1035 WOOD POLE LIGHTING 60-FOOT EACH | SPV.0060.1036* POLES WOOD 60-FOOT EACH | SPV.0060.1037 POLES WOOD 35-FOOT EACH | SPV.0060.1040* REMOVING POLES WOOD 60-FOOT AND FLOODLIGHTS EACH | SPV.0060.1041* REMOVING POLES WOOD 60-FOOT EACH | SPV.0060.1042 REMOVING POLES WOOD 35-FOOT EACH | SPV.0060.1043 REMOVING POLES WOOD 35-FOOT AND FLOODLIGHTS EACH | SPV.0060.1070 LUMINAIRES FLOODLIGHT 1000W HPS EACH | SPV.0060.1071 LUMINAIRES FLOODLIGHT 400W HPS EACH | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1100 | 1 | WP-ZT-4 | STA. 485NW+31.2, 44.2' LT | -- | 1 | -- | -- | 1 | -- | -- | -- | -- | |
| | | WP-ZT-3 | STA. 482NW+92.8, 25.7' LT | -- | 1 | -- | -- | 1 | -- | -- | -- | -- | |
| | | WP-ZT-2 | STA. 480NW+35.4, 32.6' LT | -- | 1 | -- | -- | 1 | -- | -- | -- | -- | |
| | | WP-ZT-1 | STA. 478NW+35.6, 88.6' LT | -- | 1 | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-FLE-4 | STA. 567SW+60.5, 57.9' LT | 1 | -- | -- | 1 | -- | -- | -- | -- | -- | REUSE EXIST FLOOD |
| | | WP-LE-10 | STA. 572SA+93.0, 35.5' LT | -- | 1 | -- | -- | 1 | -- | -- | -- | -- | |
| | | WP-LE-11 | STA. 474NW+37.3, 18.2' LT | -- | 1 | -- | -- | 1 | -- | -- | -- | -- | |
| | | WP-LE-12 | STA. 475NW+32.2, 16.7' LT | -- | - | 1 | -- | -- | 1 | -- | -- | -- | |
| | | T-GLE-8 | STA. 575SA+61.7, 14.5' LT | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-FLE-9 | STA. 573SW+4.3, 21.4' RT | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| 1100 | 1 | | SUBTOTAL | 61 | 15 | 23 | 60 | 16 | 11 | 12 | 56 | 30 | |
| 1100 | 3 | WP-ZE-2 | STA. 606ES+25.8, 24.5' RT | -- | 1 | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-AZE-1 | STA. 599SE+67.5, 17.3' LT | 1 | -- | -- | 1 | -- | -- | -- | -- | 1 | |
| | | T-BZE-1 | STA. 601SE+59.2, 3.2' LT | 1 | -- | -- | 1 | -- | -- | -- | -- | 1 | |
| | | T-AZE-2/T-BZE-2 | STA. 603SE+47.6, .4' LT | 1 | -- | -- | 1 | -- | -- | -- | 1 | 1 | |
| | | T-AZE-3/T-BZE-3 | STA. 805FC+38.9, 34.7' LT | 1 | -- | -- | 1 | -- | -- | -- | 1 | 1 | |
| | | T-AZE-4/T-BZE-4 | STA. 807FC+19.9, 32.9' LT | 1 | -- | -- | 1 | -- | -- | -- | 1 | 1 | |
| | | WP-ZB-5 | STA. 587WS+13.3, 20.3' RT | -- | 1 | -- | -- | 1 | -- | -- | 1 | 1 | TEMP POWER WS RAMP |
| 1100 | 3 | | SUBTOTAL | 5 | 2 | 0 | 5 | 2 | 0 | 0 | 4 | 6 | |
| 1100 | 4 | T-AZB-1 | STA. 591SW+69.6, 39.6' RT | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-BZB-1 | STA. 583SE+34.0, 46.8' LT | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | WP-ZB-1 | STA. 593SW+46.3, 39.3' LT | -- | 1 | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-CZB-1 | STA. 594SW+94.7, 34.0' LT | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | WP-ZB-2 | STA. 585SE+31.1, 81.3' RT | -- | 1 | -- | -- | 1 | -- | -- | -- | -- | |
| | | WP-ZB-3 | STA. 586SE+64.7, 58.0' LT | -- | 1 | -- | -- | 1 | -- | -- | -- | -- | |
| | | T-AZB-2 | STA. 787GE+60.3, 29.9' RT | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-BZB-2 | STA. 789GE+47.6, 25.2' RT | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-CZB-2 | STA. 790GE+11.1, 62.7' RT | -- | -- | 1 | -- | -- | -- | 1 | -- | 1 | |
| | | T-AZB-3 | STA. 790GE+91.7, 161.5' RT | -- | -- | 1 | -- | -- | -- | 1 | -- | 1 | |
| | | T-AZB-4 | STA. 586SE+65.9, 77.8' RT | -- | -- | 1 | -- | -- | -- | 1 | -- | 1 | |
| | | T-BZB-4 | STA. 588SE+32.1, 88.5' RT | -- | -- | 1 | -- | -- | -- | 1 | -- | 1 | |
| | | T-CZB-4 | STA. 589SE+89.1, 91.0' RT | -- | -- | 1 | -- | -- | -- | 1 | -- | 1 | |
| | | T-AZB-5 | STA. 591SE+61.2, 109.6' RT | -- | -- | 1 | -- | -- | -- | 1 | -- | 1 | |
| | | T-BZB-5 | STA. 593SE+23.8, 118.3' RT | -- | -- | 1 | -- | -- | -- | 1 | -- | 1 | |

3

3

*(CONTINUED ON NEXT SHEET)*

Addendum No. 03
ID 1060-33-81
Revised Sheet 1962
September 14, 2015

## LIGHTING AND MISCELLANEOUS - TEMPORARY *(CONTINUED)*

| CATEGORY | STAGE | DESCRIPTION | LOCATION | SPV.0060.1035 WOOD POLE LIGHTING 60-FOOT EACH | SPV.0060.1036* POLES WOOD 60-FOOT EACH | SPV.0060.1037 POLES WOOD 35-FOOT EACH | SPV.0060.1040* REMOVING POLES WOOD 60-FOOT AND FLOODLIGHTS EACH | SPV.0060.1041* REMOVING POLES WOOD 60-FOOT EACH | SPV.0060.1042 REMOVING POLES WOOD 35-FOOT EACH | SPV.0060.1043 REMOVING POLES WOOD 35-FOOT AND FLOODLIGHTS EACH | SPV.0060.1070 LUMINAIRES FLOODLIGHT 1000W HPS EACH | SPV.0060.1071 LUMINAIRES FLOODLIGHT 400W HPS EACH | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1100 | 4 | WP-ZB-4 | STA. 594SE+90.2, 159.6' RT | -- | -- | 1 | -- | -- | 1 | -- | -- | -- | |
| | | T-AZB-6 | STA. 596SE+24.5, 120.5' RT | -- | -- | 1 | -- | -- | -- | 1 | -- | 1 | |
| | | T-BZB-6 | STA. 597SE+90.3, 105.3' RT | -- | -- | 1 | -- | -- | -- | 1 | -- | 1 | |
| | | T-X'ZB-1 | STA. 592SW+18.7, 30.7' RT | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-Y'ZB-1 | STA. 593SW+46.3, 39.3' RT | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-Z'ZB-1 | STA. 594SW+94.7, 34.0' RT | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| 1100 | 4 | | SUBTOTAL | 8 | 3 | 11 | 8 | 3 | 1 | 10 | 8 | 10 | |
| 1100 | 5 | T-BZT-6 | STA. 178EW+28.2, 83.4' LT | -- | -- | 1 | -- | -- | -- | 1 | -- | 1 | |
| | | T-AZT-6 | STA. 179EW+69.4, 106.1' LT | -- | -- | 1 | -- | -- | -- | 1 | -- | 1 | |
| 1100 | 5 | T-BZT-5 | STA. 580SW+89.1, 51.0' LT | -- | -- | -- | 1 | -- | -- | -- | -- | 1 | EXISTING WP-ZW-04 |
| | | T-AZT-5 | STA. 581SW+87.4, 136.3' LT | -- | -- | -- | 1 | -- | -- | -- | -- | 1 | EXISTING WP-ZW-05 |
| | | T-BZT-4 | STA. 483NW+95.4, 78.8' LT | -- | -- | -- | 1 | -- | -- | -- | -- | 1 | |
| 1100 | 5 | | SUBTOTAL | 0 | 0 | 2 | 3 | 0 | 0 | 2 | 0 | 5 | |
| 1100 | 6 | T-CZE-2/T-DZE-2 | STA. 524EN+74.9, 148.4' RT | -- | -- | 1 | -- | -- | 1 | -- | -- | 2 | |
| | | T-CZE-3 | STA. 525EN+86.5, 136.2' RT | -- | -- | 1 | -- | -- | 1 | -- | -- | 1 | |
| | 3 | T-DZE-3 | STA. 527EN+50.7, 179.6' RT | -- | -- | 1 | -- | -- | 1 | -- | -- | 1 | |
| | | T-CZE-4 | STA. 529EN+52.1, 163.3' RT | -- | -- | 1 | -- | -- | 1 | -- | -- | 1 | |
| | | T-DZE-4 | STA. 531EN+50.1, 186.2' RT | -- | -- | 1 | -- | -- | 1 | -- | -- | 1 | |
| | | T-CZE-5 | STA. 532EN+96.6, 187.5' RT | -- | -- | 1 | -- | -- | 1 | -- | -- | 1 | |
| | | T-BZB-3 | STA. 791GE+53.2, 31.7' RT | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | T-CZB-3 | STA. 792GE+83.3, 55.3' RT | 1 | -- | -- | 1 | -- | -- | -- | 1 | -- | |
| | | WP-ZB-6 | STA. 586WS+83.3, 37.3' LT | -- | 1 | -- | - | 1 | -- | -- | -- | -- | |
| 1100 | 6 | | SUBTOTAL | 2 | 1 | 6 | 2 | 1 | 6 | 0 | 2 | 7 | |
| 1100 | | | TOTAL | 76 | 21 | 42 | 78 | 22 | 18 | 24 | 70 | 58 | |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 1963
September 14, 2015

*(CONTINUED ON NEXT SHEET)*

Addendum No. 03
ID 1060-33-81
Revised Sheet 1964
September 14, 2015

2

## LIGHTING - WIRE AND CONDUIT - TEMPORARY

| CAT. | STAGE | FROM | TO | 652.0225* CONDUIT RIGID NONMETALLIC SCHEDULE 40 2 -INCH LF | 652.0235* CONDUIT RIGID NONMETALLIC SCHEDULE 40 3 -INCH LF | 652.0615* SPECIAL CONDUIT 3-INCH LF | 655.0625* ELECTRICAL WIRE LIGHTING 6 AWG LF | 655.0630* ELECTRICAL WIRE LIGHTING 4 AWG LF | 655.0635* ELECTRICAL WIRE LIGHTING 2 AWG LF | 655.0645* ELECTRICAL WIRE LIGHTING 1/0 AWG LF | SPV.0090.1005 CABLE AERIAL ALUMINUM 6 AWG QUADRUPLEX LF | SPV.0090.1006 CABLE AERIAL ALUMINUM 4 AWG QUADRUPLEX LF | SPV.0090.1007 CABLE AERIAL ALUMINUM 2 AWG QUADRUPLEX LF | SPV.0090.1008 CABLE AERIAL ALUMINUM 1/0 AWG QUADRUPLEX LF | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1100 | 1 | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | | | | | | | | -- | -- | | | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | 3 | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | T-DLC-3 | T-CLC-3 | -- | -- | -- | -- | -- | -- | -- | 220 | -- | -- | -- | |
| | | T-CLC-3 | T-DLC-2 | -- | -- | -- | -- | -- | -- | -- | 220 | -- | -- | -- | |

*(CONTINUED ON NEXT SHEET)*

## LIGHTING - WIRE AND CONDUIT - TEMPORARY *(CONTINUED)*

| CAT. | STAGE | FROM | TO | 652.0225* CONDUIT RIGID NONMETALLIC SCHEDULE 40 2 -INCH LF | 652.0235* CONDUIT RIGID NONMETALLIC SCHEDULE 40 3 -INCH LF | 652.0615* SPECIAL CONDUIT 3-INCH LF | 655.0625* ELECTRICAL WIRE LIGHTING 6 AWG LF | 655.0630* ELECTRICAL WIRE LIGHTING 4 AWG LF | 655.0635* ELECTRICAL WIRE LIGHTING 2 AWG LF | 655.0645* ELECTRICAL WIRE LIGHTING 1/0 AWG LF | SPV.0090.1005 CABLE AERIAL ALUMINUM 6 AWG QUADRUPLEX LF | SPV.0090.1006 CABLE AERIAL ALUMINUM 4 AWG QUADRUPLEX LF | SPV.0090.1007 CABLE AERIAL ALUMINUM 2 AWG QUADRUPLEX LF | SPV.0090.1008 CABLE AERIAL ALUMINUM 1/0 AWG QUADRUPLEX LF | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | T-GLE-4 | WP-LE-10 | -- | -- | -- | -- | -- | -- | -- | 202 | -- | -- | -- | |
| | | WP-LE-10 | WP-LE-11 | -- | -- | -- | -- | -- | -- | -- | 174 | -- | -- | -- | |
| | | WP-LE-11 | WP-LE-12 | -- | -- | -- | -- | -- | -- | -- | 107 | -- | -- | -- | |
| | | WP-LE-12 | T-GLE-8 | 205 | -- | -- | 848 | -- | -- | -- | -- | -- | -- | -- | 3 |
| | | T-GLE-8 | T-FLE-9 | -- | -- | -- | -- | -- | -- | -- | 232 | -- | -- | -- | |
| 1100 | 1 | | SUBTOTAL | 920 | 540 | 540 | 5568 | 1800 | 448 | 1680 | 7936 | 4432 | 4850 | 3788 | |
| 1100 | 3 | T-AZE-4/T-BZE-4 | T-BZE-3/T-AZE-3 | -- | -- | -- | -- | -- | -- | -- | 193 | -- | -- | -- | |
| | | T-BZE-3/T-AZE-3 | T-AZE-2/T-BZE-2 | -- | -- | -- | -- | -- | -- | -- | 207 | -- | -- | -- | |
| | | T-AZE-2/T-BZE-2 | T-BZE-1 | -- | -- | -- | -- | -- | -- | -- | 200 | -- | -- | -- | |
| | | T-BZE-1 | T-AZE-1 | -- | -- | -- | -- | -- | -- | -- | 205 | -- | -- | -- | |
| | | T-AZE-1 | WP-ZE-2 | -- | -- | -- | -- | -- | -- | -- | 241 | -- | -- | -- | |
| | | WP-ZE-2 | WP-ZE-1 | -- | -- | -- | -- | -- | -- | -- | 208 | -- | -- | -- | |
| 1100 | 3 | | SUBTOTAL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1254 | 0 | 0 | 0 | |
| 1100 | 4 | T-B'ZB-6 | T-A'ZB-6 | -- | -- | -- | -- | -- | -- | -- | 164 | -- | -- | -- | |
| | | T-A'ZB-6 | WP-ZB-4 | -- | -- | -- | -- | -- | -- | -- | 136 | -- | -- | -- | |
| | | WP-ZB-4 | T-C'ZB-5 | -- | -- | -- | -- | -- | -- | -- | 54 | -- | -- | -- | |
| | | T-C'ZB-5 | T-B'ZB-5 | -- | -- | -- | -- | -- | -- | -- | 144 | -- | -- | -- | |
| | | T-B'ZB-5 | T-A'ZB-5 | -- | -- | -- | -- | -- | -- | -- | 161 | -- | -- | -- | |
| | | T-A'ZB-5 | T-C'ZB-4 | -- | -- | -- | -- | -- | -- | -- | 192 | -- | -- | -- | |
| | | T-A'ZB-4 | WP-ZB-3 | -- | -- | -- | -- | -- | -- | -- | 148 | -- | -- | -- | |
| | | T-A'ZB-3 | T-C'ZB-2 | -- | -- | -- | -- | -- | -- | -- | 162 | -- | -- | -- | |
| | | T-C'ZB-2 | T-B'ZB-2 | -- | -- | -- | -- | -- | -- | -- | 92 | -- | -- | -- | |
| | | T-B'ZB-2 | T-A'ZB-2 | -- | -- | -- | -- | -- | -- | -- | 193 | -- | -- | -- | |
| | | WP-ZB-3 | T-A'ZB-2 | -- | -- | -- | -- | -- | -- | -- | 70 | -- | -- | -- | |
| | | T-A'ZB-4 | WP-ZB-2 | -- | -- | -- | -- | -- | -- | -- | 152 | -- | -- | -- | |
| | | WP-ZB-2 | TA'ZB-1 | -- | -- | -- | -- | -- | -- | -- | 143 | -- | -- | -- | |
| | | T-B'ZB-1 | T-C'ZB-1 | -- | -- | -- | -- | -- | -- | -- | 197 | -- | -- | -- | |
| | | T-A'ZB-1 | T-B'ZB-1 | -- | -- | -- | -- | -- | -- | -- | 207 | -- | -- | -- | |

Addendum No. 03
ID 1060-33-81
Revised Sheet 1968
September 14, 2015

## LIGHTING - WIRE AND CONDUIT - TEMPORARY *(CONTINUED)*

| CAT. | STAGE | FROM | TO | 652.0225* CONDUIT RIGID NONMETALLIC SCHEDULE 40 2 -INCH LF | 652.0235* CONDUIT RIGID NONMETALLIC SCHEDULE 40 3 -INCH LF | 652.0615* SPECIAL CONDUIT 3-INCH LF | 655.0625* ELECTRICAL WIRE LIGHTING 6 AWG LF | 655.0630* ELECTRICAL WIRE LIGHTING 4 AWG LF | 655.0635* ELECTRICAL WIRE LIGHTING 2 AWG LF | 655.0645* ELECTRICAL WIRE LIGHTING 1/0 AWG LF | SPV.0090.1005 CABLE AERIAL ALUMINUM 6 AWG QUADRUPLEX LF | SPV.0090.1006 CABLE AERIAL ALUMINUM 4 AWG QUADRUPLEX LF | SPV.0090.1007 CABLE AERIAL ALUMINUM 2 AWG QUADRUPLEX LF | SPV.0090.1008 CABLE AERIAL ALUMINUM 1/0 AWG QUADRUPLEX LF | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1100 | 4 | T-A'ZB-1 | WP-ZB-1 | -- | -- | -- | -- | -- | -- | -- | 86 | -- | -- | -- | |
| | | WP-ZB-1 | PB-ZB-7 | -- | -- | -- | -- | -- | -- | -- | 90 | -- | -- | -- | |
| | | PB-ZB-7 | PB-ZB-3 | 615 | -- | -- | 2488 | -- | -- | -- | -- | -- | -- | -- | |
| | | PB-ZB-3 | PB-ZB-1 | 108 | -- | -- | 460 | -- | -- | -- | -- | -- | -- | -- | |
| | | PB-ZB-1 | HL-40-ZB | 25 | -- | -- | 128 | -- | -- | -- | -- | -- | -- | -- | |
| | | JB-ZB-1 | T-X'ZB-1 | 95 | -- | -- | 408 | -- | -- | -- | -- | -- | -- | -- | |
| | | T-X'ZB-1 | T-Y'ZB-1 | -- | -- | -- | -- | -- | -- | -- | 147 | -- | -- | -- | |
| | | T-Y'ZB-1 | T-Z'ZB-1 | -- | -- | -- | -- | -- | -- | -- | 177 | -- | -- | -- | |
| 1100 | 4 | | SUBTOTAL | 843 | 0 | 0 | 3484 | 0 | 0 | 0 | 2715 | 0 | 0 | 0 | |
| 1100 | 6 | T-CZE-5 | T-DZE-4 | -- | -- | -- | -- | -- | -- | -- | 138 | -- | -- | -- | |
| | | T-DZE-4 | T-CZE-4 | -- | -- | -- | -- | -- | -- | -- | 216 | -- | -- | -- | |
| | | T-CZE-4 | T-DZE-3 | -- | -- | -- | -- | -- | -- | -- | 150 | -- | -- | -- | |
| | | T-DZE-3 | T-CZE-3 | -- | -- | -- | -- | -- | -- | -- | 161 | -- | -- | -- | |
| | | T-CZE-3 | T-CZE-2/T-DZE-2 | -- | -- | -- | -- | -- | -- | -- | 135 | -- | -- | -- | |
| | | T-CZE-2/T-DZE-2 | T-DZE-1 | -- | -- | -- | -- | -- | -- | -- | 135 | -- | -- | -- | |
| | | T-CZB-4 | T-BZB-4 | -- | -- | -- | -- | -- | -- | -- | 156 | -- | -- | -- | |
| | | T-BZB-4 | T-AZB-4 | -- | -- | -- | -- | -- | -- | -- | 162 | -- | -- | -- | |
| | | T-C'ZB-3 | T-B'ZB-3 | -- | -- | -- | -- | -- | -- | -- | 144 | -- | -- | -- | |
| | | T-B'ZB-3 | T-A'ZB-3 | -- | -- | -- | -- | -- | -- | -- | 157 | -- | -- | -- | |
| 1100 | 6 | | SUBTOTAL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1554 | 0 | 0 | 0 | |
| 1100 | | | TOTALS | 1763 | 540 | 540 | 9052 | 1800 | 448 | 1680 | 13459 | 4432 | 4850 | 3788 | |

* = SEE ELSEWHERE FOR ADDITIONAL QUANTITIES

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 1969
September 14, 2015

| STATE PROJECT NUMBER |
|---|
| 1060-33-81 |

## GENERAL

G.1. DRAWINGS SHALL NOT BE SCALED.

G.2. ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS NOTED OTHERWISE.

G.3. COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), MILWAUKEE COUNTY ZONE, NAD 83 (2007). ALL STATIONS AND ELEVATIONS ARE IN FEET. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM NAVD 88 (2007).

G.4. DIRECTIONS IN THE PLANS REFERRING TO 'LEFT' AND 'RIGHT' ARE WITH RESPECT TO THE REFERENCE LINE WHEN LOOKING UP STATION.

G.5. TRANSVERSE DIMENSIONS TO THE REFERENCE LINE ARE RADIAL (ON A CURVE) OR NORMAL (ON A TANGENT) UNLESS NOTED OTHERWISE.

G.6. THE UTILITY INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE. UTILITIES LABELED AS PROPOSED MAY BE INSTALLED BY OTHERS PRIOR TO THIS CONTRACT.

G.7. THE CONTRACTOR MUST COORDINATE THE CONSTRUCTION OF BRIDGE B-40-787 WITH PROPOSED WALL R-40-535, PROPOSED BRIDGES B-40-786 AND B-40-856, AND PROPOSED SIGN BRIDGE S-40-96. SEE STRUCTURE PLANS.

G.8. SEE CONSTRUCTION STAGING SHEETS FOR INFORMATION ON ASSUMED CONSTRUCTION SEQUENCE.

## EXCAVATION AND BACKFILL

EB.1. THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES, BRIDGES B-40-787" SHALL BE AS FOLLOWS:
PIERS: AS DEFINED ON THE EXCAVATION PLAN SHEETS

EB.2. (3) THE EXISTING ABANDONED 6 INCH DIAMETER STEEL ELECTRICAL CONDUIT CASING UNDER THE WEST ABUTMENT MUST BE REMOVED PRIOR TO DRIVING PILES. THE COST OF THIS REMOVAL IS PAID FOR IN THE ROADWAY BID ITEM SPV.0090.0016 "REMOVING MISCELLANEOUS PIPE". SEE REMOVAL PLANS - UTILITIES FOR REMOVAL LOCATIONS.

EB.3. AT THE BACK FACE OF ABUTMENT, ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW BRIDGE OR RETAINING WALL REINFORCED ZONE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

## DESIGN

D.1. DESIGN IS IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 6TH EDITION, 2012, UNLESS NOTED OTHERWISE.

D.2. TEMPERATURE CHANGE USED FOR DETERMINING SUBSTRUCTURE FORCES = 90°F.

D.3. ABSOLUTE TEMPERATURE RANGE FOR DETERMINING BEARING AND EXPANSION JOINT MOVEMENTS = -30°F TO +120°F.

D.4. DESIGN ASSUMED 10 PSF FOR TEMPORARY FORMWORK IN ADDITION TO STAY-IN-PLACE FORMS.

D.5. LIVE LOAD DEFLECTION LIMIT = SPAN/800 (HL93)

## STRUCTURAL STEEL

SS.1. STEEL GRADE FOR ALL PLATES AND ROLLED SHAPES SHALL BE ASTM A709 GRADE 50.

SS.2. STEEL GRADES FOR BEARING COMPONENTS SHALL BE AS NOTED ON THE BEARING SHEETS.

SS.3. CHARPY V-NOTCH TOUGHNESS REQUIREMENTS FOR ALL STEEL SHALL CONFORM TO THE REQUIREMENTS FOR ZONE 2.

SS.4. ALL BOLTS SHALL BE ASTM A325-X TYPE 1. BOLTS SHALL BE 1" DIAMETER UNLESS NOTED OTHERWISE. ALL HOLES SHALL BE STANDARD DIAMETER - NO OVERSIZED HOLES. ALL CONNECTIONS SHALL BE FABRICATED AND ASSEMBLED AS SLIP-CRITICAL CONNECTIONS. DESIGN ASSUMED CLASS B FAYING SURFACE FOR SLIP RESISTANCE.

SS.5. PAINT ALL STRUCTURAL STEEL. FINISH COAT SHALL HAVE A COLOR TO MATCH SHERWIN WILLIAMS COLOR "SW6523", GLOSSY FINISH.

SS.6. ALL GIRDER FIELD PIECES WHICH WILL BE CAST INTO CONCRETE AT INTEGRAL POST-TENSIONED PIER CAPS SHALL BE METALIZED AND PAINTED. SEE SPECIAL PROVISIONS FOR SURFACE PREPARATION.

SS.7. CAMBER DIAGRAMS HAVE BEEN DEVELOPED ASSUMING A CONSTANT 4" HAUNCH HEIGHT, MEASURED FROM THE UNDERSIDE OF THE TOP FLANGE TO THE UNDERSIDE OF THE DECK. ANY ADDITIONAL QUANTITIES REQUIRED AS A RESULT OF VARIATION IN THE HAUNCH HEIGHT ARE ASSUMED TO BE INCIDENTAL TO OTHER PAY ITEMS AND WILL NOT BE PAID FOR SEPARATELY. THIS INCLUDES ADDITIONAL CONCRETE IN THE HAUNCH, ADDITIONAL OR MORE COMPLICATED FORM WORK, EXTRA SHEAR STUD LENGTH AND ANY REQUIRED REINFORCEMENT IN THE HAUNCH.

SS.8. ALL PLAN DIMENSIONS ARE BASED ON THE FINAL DEFLECTED SHAPE AT 60° F. UNLESS OTHERWISE NOTED, PLAN DIMENSIONS ARE IN THE HORIZONTAL PLANE AND DO NOT ACCOUNT FOR ARC LENGTH ALONG THE CURVED VERTICAL PROFILE.

## REINFORCING STEEL

RS.1. ALL REINFORCING BARS ARE ENGLISH DESIGNATION AND THE FIRST DIGIT OF A 3-DIGIT BAR MARK OR THE FIRST TWO DIGITS OF A 4-DIGIT BAR MARK SIGNIFY THE BAR SIZE.

RS.2. BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS NOTED OTHERWISE.

RS.3. FOR BARS NOTED IN THE BILL OF BAR TABLES AS STAINLESS STEEL, PROVIDE STAINLESS STEEL REINFORCEMENT PER THE SPECIAL PROVISION "BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES".

RS.4. FOR PRESTRESSING NOTES, SEE PIER SHEETS.

## CONCRETE

C.1. THE HAUNCH CONCRETE QUANTITY IS BASED ON AN AVERAGE HAUNCH DEPTH OF 4" MEASURED FROM TOP OF WEB TO UNDERSIDE OF SLAB (EXCLUDING THE VOLUME TAKEN UP BY THE TOP FLANGE) WHICH IS THE MAXIMUM HAUNCH QUANTITY FOR WHICH THE CONTRACTOR WILL BE PAID.

C.2. THE PARAPET CONCRETE QUANTITY FOR PARAPET ON THE DECK, ABUTMENT BACKWALL, AND APPROACH SLAB SHALL BE PAID FOR UNDER BID ITEM "HPC MASONRY STRUCTURES".

C.3. THE CONCRETE QUANTITY FOR APPROACH SLAB FOOTING SHALL BE PAID FOR UNDER BID ITEM "CONCRETE MASONRY BRIDGES". THE REMAINING CONCRETE QUANTITY FOR APPROACH SLAB SHALL BE PAID FOR UNDER BID ITEM "HPC MASONRY STRUCTURES".

C.4. CONCRETE ABOVE THE ABUTMENT UPPER BACKWALL CONSTRUCTION JOINT SHALL BE PAID FOR UNDER BID ITEM "HPC MASONRY STRUCTURES". THE REMAINING CONCRETE QUANTITY FOR ABUTMENT SHALL BE PAID FOR UNDER BID ITEM "CONCRETE MASONRY BRIDGES".

C.5. THE CONCRETE QUANTITY FOR THE PIERS SHALL BE PAID FOR UNDER BID ITEM "CONCRETE MASONRY BRIDGES". THIS INCLUDES INTEGRAL PIER CAPS.

C.6. CHAMFER ALL EXPOSED OUTSIDE CORNERS ¾" UNLESS NOTED OTHERWISE.

## FOUNDATION DATA

DRIVEN PILES:

FD.1. ABUTMENTS SHALL BE SUPPORTED ON 16" DIA CIP CONCRETE PILING DRIVEN TO THE FOLLOWING REQUIRED DRIVING RESISTANCE AS DETERMINED BY THE PDA/CAPWAP METHOD.

REQUIRED DRIVING RESISTANCE:
WEST ABUTMENT: 246 TONS

FD.2. THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.65 USING THE PDA/CAPWAP METHOD TO DETERMINE DRIVEN PILE CAPACITY.

FD.3. ESTIMATED PILE LENGTHS:
WEST ABUTMENT: 80 FEET

FD.4. AT THE WEST ABUTMENT, IT IS ANTICIPATED THAT PILES WILL BE DRIVEN PRIOR TO CONSTRUCTION OF MSE WALL R-40-535. PILE DRIVING THROUGH MSE FILL WITHOUT SLEEVES IS PROHIBITED.

FD.5. PILE SPLICES SHALL BE MADE BY A CERTIFIED WELDER.

DRILLED SHAFTS:

FD.6. PIERS SHALL BE SUPPORTED ON BASE GROUTED DRILLED SHAFTS. SHAFT DIAMETERS, FACTORED AXIAL RESISTANCES, TOP OF SHAFT AND BOTTOM OF SHAFT ELEVATIONS, AND CORRESPONDING SHAFT LENGTHS FOR EACH DRILLED SHAFT ARE GIVEN IN THE TABLE BELOW.

FD.7. THE MINIMUM FACTORED AXIAL RESISTANCE OF DRILLED SHAFTS IN COMPRESSION USED FOR DESIGN IS THE REQUIRED AXIAL RESISTANCE MULTIPLIED BY A SHAFT RESISTANCE FACTOR OF 0.56. THE RESISTANCE FACTOR INCLUDES A 20% REDUCTION FOR NON-REDUNDANCY.

FD.8. SUCCESSFUL INSTALLATION AND ENGINEER ACCEPTANCE OF THE ITEM "TRIAL DRILLED FOUNDATION SHAFT, 118.11-INCH", INCLUDED IN THIS CONTRACT WITH THE QUANTITIES FOR B-40-854, IS REQUIRED PRIOR TO BEGINNING THE CONSTRUCTION OF THE ITEM "DRILLED FOUNDATION SHAFT 59.06-INCH" FOR B-40-787.

DRILLED SHAFT DATA

| SHAFT LOCATION | SHAFT NUMBER | SHAFT DIA (IN) | MINIMUM FACTORED AXIAL RESIST (KIP) | TOP OF SHAFT EL | BOTTOM OF SHAFT EL | SHAFT LENGTH (FT) |
|---|---|---|---|---|---|---|
| PIER 1 | P101 | 59.06 | 3400 | 752.0 | 675.0 | 77.0 |
| | P102 | 59.06 | 3400 | 752.0 | 675.0 | 77.0 |
| PIER 2 | P201 | 59.06 | 3000 | 755.0 | 681.0 | 74.0 |
| | P202 | 59.06 | 3000 | 755.0 | 681.0 | 74.0 |
| PIER 3 | P301 | 59.06 | 4000 | 757.0 | 661.0 | 96.0 |
| | P302 | 59.06 | 4000 | 757.0 | 661.0 | 96.0 |
| PIER 4 | P401 | 59.06 | 2800 | 755.0 | 682.0 | 73.0 |
| | P402 | 59.06 | 2800 | 753.0 | 680.0 | 73.0 |
| | P403 | 59.06 | 2800 | 750.0 | 677.0 | 73.0 |
| PIER 5 | P501 | 59.06 | 2300 | 754.0 | 689.0 | 65.0 |
| | P502 | 59.06 | 2300 | 754.0 | 682.0 | 72.0 |
| | P503 | 59.06 | 2300 | 750.0 | 685.0 | 65.0 |

William C. Dreher SDR
09/08/15

Addendum No. 03
ID 1060-33-81
Revised Sheet 2671
September 14, 2015

WISCONSIN
KARL E. SCHMID
E-30812
MILWAUKEE, WI
PROFESSIONAL ENGINEER
9/4/2015

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| (3) | 9/10/15 | REVISED NOTE EB.2. | KES |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-787

DRAWN BY GLM | PLANS CK'D. WRT

GENERAL NOTES

SHEET 6 OF 125

2671

8

8

STATE PROJECT NUMBER

1060-33-81

## ESTIMATED QUANTITIES - PIER OPTION B

| ITEM CATEGORY | ITEM NO. | BID ITEMS | UNIT | PIER WN01 | PIER WN02 | PIER WN03 | PIER WN04 | PIER WN05 | PIER WN06 | PIER WN07 | PIER WN08 | PIER WN09 | PIER WN10 | PIER WN11 | PIER WN12 | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2112 | 206.1000 | EXCAVATION FOR STRUCTURES BRIDGES B-40-856 | LS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1 |
| 2112 | 209.0100 | BACKFILL GRANULAR | CY | --- | --- | --- | 19 | 22 | 22 | 10 | 60 | --- | --- | --- | --- | 133 |
| 2112 | 502.0100 | CONCRETE MASONRY BRIDGES | CY | 155.0 | 200.0 | 186.0 | 249.0 | 297.0 | 463.0 | 373.0 | 439.0 | 270.0 | 233.0 | 361.0 | 276.0 | 3,502 |
| 2112 | 505.0405 | BAR STEEL REINFORCEMENT HS BRIDGES | LB | 34,340 | 21,840 | 33,240 | 28,010 | 21,840 | 26,940 | 23,200 | 29,260 | 21,840 | 28,410 | 26,940 | 23,520 | 319,380 |
| 2112 | 505.0605 | BAR STEEL REINFORCEMENT HS COATED BRIDGES | LB | 32,560 | 51,090 | 43,500 | 58,640 | 74,240 | 67,630 | 56,460 | 54,530 | 64,060 | 57,290 | 57,060 | 32,640 | 649,700 |
| 2112 | 511.1200.0003 | TEMPORARY SHORING B-40-856 | SF | --- | --- | --- | 555 | 1,270 | 510 (3) | --- | --- | --- | 620 | --- | --- | 2,955 (3) |
| 2112 | 550.2168 | PILING CIP CONCRETE 16 X 0.50-INCH | LF | --- | --- | --- | --- | --- | 2,240 | 1,300 | 1,700 | --- | --- | 1,440 | 1,300 | 7,980 |
| 2112 | SPV.0060.4110 | PILE DYNAMIC ANALYZER (PDA) TESTING | EACH | --- | --- | --- | --- | --- | 2 | 2 | 2 | --- | --- | 2 | 2 | 10 |
| 2112 | SPV.0060.4115 | PILE DYNAMIC ANALYZER (PDA) RESTRIKES | EACH | --- | --- | --- | --- | --- | 2 | 2 | 2 | --- | --- | 2 | 2 | 10 |
| 2112 | SPV.0060.4116 | CASE PILE WAVE ANALYSIS PROGRAM (CAP/WAP) EVALUATION | EACH | --- | --- | --- | --- | --- | 1 | 1 | 1 | --- | --- | 1 | 1 | 5 |
| 2112 | SPV.0060.4150 | DRILLED FOUNDATION SHAFT BASE GROUTING | EACH | 1 | 1 | 1 | 1 | 1 | --- | --- | --- | 1 | 1 | --- | --- | 7 |
| 2112 | SPV.0060.4160 | THERMAL INTEGRITY PROFILER (TIP) TESTING DRILLED FOUNDATION SHAFT 98.43-INCH | EACH | 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1 |
| 2112 | SPV.0060.4162 | THERMAL INTEGRITY PROFILER (TIP) TESTING DRILLED FOUNDATION SHAFT 118.11-INCH | EACH | --- | 1 | 1 | 1 | 1 | --- | --- | --- | 1 | 1 | --- | --- | 6 |
| 2112 | SPV.0060.4181 | BAR COUPLERS NO. 18 | EACH | --- | --- | 30 | 30 | --- | --- | --- | --- | --- | 30 | --- | --- | 90 |
| 2112 | SPV.0075.4200 | OBSTRUCTIONS DRILLED FOUNDATION SHAFT | HRS | 4 | 4 | 4 | 4 | 4 | --- | --- | --- | 4 | 4 | --- | --- | 28 |
| 2112 | SPV.0090.4435 | DRILLED FOUNDATION SHAFT 98.43-INCH | LF | 65 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 65 |
| 2112 | SPV.0090.4440 | DRILLED FOUNDATION SHAFT 118.11-INCH | LF | --- | 50 | 76 | 64 | 50 | --- | --- | --- | 50 | 65 | --- | --- | 355 |
| | | | | | | | | | | | | | | | | |

### NOTES

THIS CONTRACT CONTAINS TWO OPTIONS FOR PIER CONSTRUCTION.
THE CONTRACTOR MUST BID EITHER OPTION A OR OPTION B.

ITEMS ON THIS SHEET ARE FOR PIER OPTION B ONLY. FOR
ADDITIONAL ITEMS AND QUANTITIES, SEE SHEET 5.

William C. Dreher SDR
09/08/15

WISCONSIN
KARL E. SCHMID
E-30812
MILWAUKEE, WI
PROFESSIONAL ENGINEER
9/4/2015

Addendum No. 03
ID 1060-33-81
Revised Sheet 3452
September 14, 2015

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| (3) | 9/10/15 | QUANTITY REVISION | KES |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-856

DRAWN BY GLM | PLANS CK'D. WRT

OPTION B QUANTITIES

SHEET B1 OF B40

3452

8

8

| STATE PROJECT NUMBER |
|---|
| 1060-33-81 |

## TOTAL ESTIMATED QUANTITIES

| ITEM NUMBER | BID ITEM | UNIT | SOUTH APPROACH SLAB | SOUTH ABUTMENT | NORTH APPROACH SLAB | NORTH ABUTMENT | SUPER. | TOTAL |
|---|---|---|---|---|---|---|---|---|
| 203.0200.0019 | REMOVING OLD STRUCTURE STATION 786GE+00 | LS | ----- | ----- | ----- | ----- | ----- | 1 |
| 206.1000.0014 | EXCAVATION FOR STRUCTURES BRIDGES B-40-860 | LS | ----- | ----- | ----- | ----- | ----- | 1 |
| 210.0100 | BACKFILL STRUCTURE | CY | ----- | 179 | ----- | 167 | ----- | 346 |
| 305.0120 | BASE AGGREGATE DENSE 1 1/4 INCH | TONS | 125 | ----- | 125 | ----- | ----- | 250 |
| 502.0100 | CONCRETE MASONRY BRIDGES | CY | 8 | 75 | 8 | 72 | ----- | 163 |
| 502.3200 | PROTECTIVE SURFACE TREATMENT | SY | 87 | ----- | 87 | ----- | 447 | 621 |
| 3 503.0146 | PRESTRESSED GIRDER TYPE I 45W-INCH | LF | ----- | ----- | ----- | ----- | 404 | 404 |
| 505.0405 | BAR STEEL REINFORCEMENT HS BRIDGES | LB | ----- | 2,890 | ----- | 3,290 | ----- | 6,180 |
| 505.0605 | BAR STEEL REINFORCEMENT HS COATED BRIDGES | LB | 7,480 | 3,620 | 7,480 | 3,460 | 26,140 | 48,180 |
| 505.0800.S | BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES | LB | ----- | ----- | ----- | ----- | 2,250 | 2,250 |
| 506.2605 | BEARING PADS ELASTOMERIC NON-LAMINATED | EACH | ----- | 4 | ----- | 4 | ----- | 8 |
| 506.4000.0010 | STEEL DIAPHRAGMS B-40-860 | EACH | ----- | ----- | ----- | ----- | 6 | 6 |
| 514.0450 | FLOOR DRAINS TYPE WF | EACH | ----- | ----- | ----- | ----- | 1 | 1 |
| 514.2608 | DOWNSPOUT 8-INCH | LF | ----- | ----- | ----- | ----- | 10 | 10 |
| 516.0500 | RUBBERIZED MEMBRANE WATERPROOFING | SY | ----- | 10 | ----- | 9 | ----- | 19 |
| 517.1010.S.0015 | CONCRETE STAINING B-40-860 | SF | 140 | 732 | 140 | 704 | 2,570 | 4,286 |
| 550.2148 | PILING CIP CONCRETE 14 X 0.500 INCH | LF | ----- | 720 | ----- | 675 | ----- | 1,395 |
| 612.0406 | PIPE UNDERDRAIN WRAPPED 6-NCH | LF | ----- | 58 | ----- | 58 | ----- | 116 |
| 652.0125 | CONDUIT RIGID METALLIC 2-INCH | LF | 6 | ----- | 6 | ----- | 6 | 18 |
| 652.0225 | CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH | LF | 14 | ----- | 14 | ----- | 99 | 127 |
| SPV.0035.4000 | HPC MASONRY STRUCTURES | CY | 37 | ----- | 37 | ----- | 157 | 231 |
| SPV.0060.4110 | PILE DYNAMIC ANALYZER (PDA) TESTING | EACH | ----- | 2 | ----- | 2 | ----- | 4 |
| SPV.0060.4115 | PILE DYNAMIC ANALYZER (PDA) RESTRIKES | EACH | ----- | 2 | ----- | 2 | ----- | 4 |
| SPV.0060.4116 | CASE PILE WAVE ANALYSIS PROGRAM (CAPWAP) EVALUATION | EACH | ----- | 1 | ----- | 1 | ----- | 2 |
| SPV.0165.4700 | LONGITUDINAL GROOVING BRIDGE DECK | SF | 480 | ----- | 480 | ----- | 2,510 | 3,470 |
| | | | | | | | | |
| | | | | | | | | |
| | **NON-BID ITEMS** | | | | | | | |
| | PREFORMED JOINT FILLER | SIZE | ----- | ----- | ----- | ----- | ----- | 3/4" |
| | NON-BITUMINOUS JOINT FILLER | SIZE | ----- | ----- | ----- | ----- | ----- | 1/2" |
| | CORK FILLER | SIZE | ----- | ----- | ----- | ----- | ----- | 3/4" |
| | NAME PLATE | EACH | ----- | ----- | ----- | ----- | ----- | 1 |

ALL ITEMS ARE CATEGORY 2140

## GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BRIDGE B-40-861 PIER FOOTING AND COLUMN TO BE CONSTRUCTED PRIOR TO B-40-860 SOUTH ABUTMENT

BAR STEEL REINFORCEMENT WILL BE PLACED WITH 2" OF CLEAR CONCRETE COVER UNLESS OTHERWISE NOTED.

BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE NOTED.

ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE NOTED.

ALL STATIONS AND ELEVATIONS ARE IN FEET. ELEVATIONS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD).

THE UTILITY INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE.

ALL REINFORCING BARS ARE ENGLISH. THE FIRST DIGIT OF A THREE DIGIT BAR MARK OR THE FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFY THE BAR SIZE.

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMIT OF EXCAVATION FOR STRUCTURES.

AT THE BACK FACE OF ABUTMENT, ALL SPACES EXCAVATED AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH SLOPE PAVING MATERIAL TO THE EXTENT SHOWN ON THE "SLOPE PAVING AT HANK AARON STATE TRAIL" CONSTRUCTION DETAILS IN ROADWAY PLAN SET. NOT A BRIDGE ITEM.

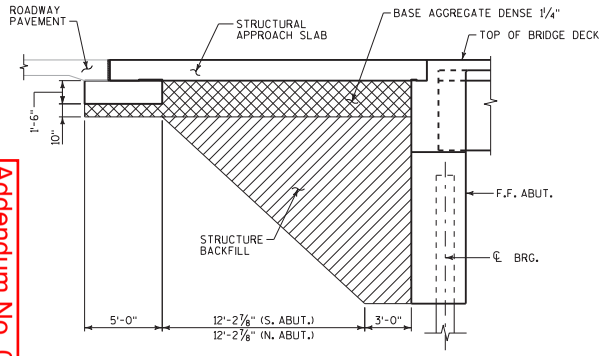
RODENT SHIELD SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH"

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE PRESTRESSED GIRDER DETAIL SHEET.

THE PARAPET CONCRETE QUANTITY FOR SINGLE SLOPE 42SS MODIFIED SHALL BE PAID FOR UNDER BID ITEM "HPC MASONRY STRUCTURES".

THE EXISTING STRUCTURE TO BE REMOVED IS A THREE SIDED BOX CULVERT TEMPORARILY INSTALLED OVER THE HANK AARON STATE TRAIL.

WISCONSIN
BRIAN D. CATER
38996
KENOSHA, WI
PROFESSIONAL ENGINEER
9/4/15




BACKFILL LIMITS
(DIMENSIONS ARE MEASURED NORMAL TO ABUTMENT)

William C. Drecher SDR
09/08/15

Addendum No. 03
ID 1060-33-81
Revised Sheet 3553
September 14, 2015

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 3 | 9/10/15 | BID ITEM REVISION | BDC |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-860

DRAWN BY AG | PLANS CK'D. STB

GENERAL NOTES & QUANTITIES

SHEET 3 OF 23

3553

FILE NAME : W:\Cadd\Final\10603381_Z2\Structs\B-40-860\cds\B860_080104_qu_ADD3.dgn PLOT DATE : 04-SEP-2015 11:33 PLOT BY : msckes PLOT NAME : B860_080104_qu_ADD3 PLOT SCALE : 8:1

## TOTAL ESTIMATED QUANTITIES

SPV.0165.4785 CONCRETE STAINING PREVIOUSLY CONSTRUCTED STRUCTURE

| STRUCTURE NUMBER | PREVIOUS PROJECT ID | QUANTITY (SF) | MODIFIED CONC SURFACE FINISH AREA (SF) ☆ |
|---|---|---|---|
| B-40-770 | 1060-33-75 | 17,100 | 9,480 |
| B-40-771 | 1060-33-75 | 22,200 | 12,260 |
| B-40-773 | 1060-33-75 | 14,900 | 14,900 |
| B-40-774 | 1060-33-75 | 6,400 | 6,400 |
| B-40-868 | 1060-33-75 | 8,000 | 2,700 |
| R-40-471 | 1060-33-75 | 5,300 | 5,300 |
| R-40-472 | 1060-33-75 | 4,600 | 330 |
| R-40-482 | 1060-33-75 | 10,400 | 0 |
| R-40-537 | 1060-33-75 | 6,490 | 6,490 |
| R-40-538 | 1060-33-75 | 2,500 | 2,500 |
| S-40-89 | 1060-33-75 | 1,000 | 1,000 |
| S-40-90 | 1060-33-75 | 1,590 | 1,590 |
| B-40-769 | 1060-33-77 | 14,650 | 6,750 |
| B-40-799 | 1060-33-78 | 2,560 | 260 |
| B-40-789 | 1060-33-80 | 2,240 | 800 |
| B-40-791 | 1060-33-80 | 10,160 | 2,260 |
| B-40-798 | 1060-33-80 | 3,015 | 600 |
| B-40-849 | 1060-33-80 | 3,165 | 650 |
| B-40-852 | 1060-33-80 | 15,915 | 7,000 |
| B-40-855 | 1060-33-80 | 38,700 | 12,000 |
| B-40-857 | 1060-33-80 | 12,850 | 2,700 |
| B-40-862 | 1060-33-80 | 18,485 | 6,310 |
| B-40-863 | 1060-33-80 | 3,065 | 830 |
| B-40-864 | 1060-33-80 | 3,245 | 1,010 |
| B-40-866 | 1060-33-80 | 11,740 | 4,670 |
| B-40-891 | 1060-33-80 | 2,530 | 1,670 |
| R-40-501 | 1060-33-80 | 1,390 | 220 |
| R-40-504 | 1060-33-80 | 11,480 | 2,350 |
| R-40-514 | 1060-33-80 | 9,280 | 1,820 |
| ~~R-40-522~~ | ~~1060-33-80~~ | ~~2,230~~ | --------- |
| R-40-523 | 1060-33-80 | 840 | 250 |
| R-40-536 | 1060-33-80 | 23,340 | 2,710 |
| R-40-546 | 1060-33-80 | 46,870 | 46,870 |
| R-40-548 | 1060-33-80 | 45,910 | 45,910 |
| R-40-551 | 1060-33-80 | 15,030 | 2,350 |
| R-40-552 | 1060-33-80 | 34,900 | 6,000 |
| R-40-556 | 1060-33-80 | 18,360 | 3,230 |
| S-40-22 | 1060-33-80 | 1,080 | 1,080 |
| S-40-27 | 1060-33-80 | 970 | 970 |
| S-40-28 | 1060-33-80 | 410 | 410 |
| S-40-44 | 1060-33-80 | 690 | 690 |
| S-40-47 | 1060-33-80 | 740 | 740 |
| S-40-50 | 1060-33-80 | 950 | 950 |
| S-40-51 | 1060-33-80 | 830 | 830 |
| S-40-65 | 1060-33-80 | 430 | 430 |
| S-40-85 | 1060-33-80 | 460 | 460 |
| S-40-87 | 1060-33-80 | 930 | 930 |
| S-40-116 | 1060-33-80 | 720 | 720 |
| S-40-117 | 1060-33-80 | 530 | 530 |
| S-40-118 | 1060-33-80 | 420 | 420 |
| S-40-119 | 1060-33-80 | 400 | 400 |
| S-40-121 | 1060-33-80 | 490 | 490 |
| S-40-122 | 1060-33-80 | 1,340 | 1,340 |
| S-40-124 | 1060-33-80 | 390 | 390 |
| S-40-129 | 1060-33-80 | 400 | 400 |
| S-40-130 | 1060-33-80 | 470 | 470 |
| S-40-131 | 1060-33-80 | 400 | 400 |
| S-40-132 | 1060-33-80 | 900 | 900 |
| S-40-134 | 1060-33-80 | 410 | 410 |
| S-40-135 | 1060-33-80 | 650 | 650 |
| S-40-136 | 1060-33-80 | 720 | 720 |
| S-40-137 | 1060-33-80 | 260 | 260 |
| S-40-146 | 1060-33-80 | 420 | 420 |
| S-40-788 | 1060-33-80 | 290 | 290 |
| S-40-789 | 1060-33-80 | 280 | 280 |
| S-40-790 | 1060-33-80 | 290 | 290 |
| B-40-884 | 1090-07-73 | 8,300 | 2,740 |
| R-40-580 | 1090-07-73 | 860 | 210 |
| R-40-581 | 1090-07-73 | 800 | 210 |
| B-40-889 | 1100-03-79 | 23,600 | 7,770 |
| R-40-614 | 1100-03-79 | 870 | 260 |
| R-40-615 | 1100-03-79 | 640 | 260 |
| R-40-616 | 1100-03-79 | 1,060 | 330 |
| R-40-617 | 1100-03-79 | 770 | 250 |

## TOTAL ESTIMATED QUANTITY SUMMARY

| BID ITEM NO. | BID ITEMS | UNIT | TOTAL |
|---|---|---|---|
| SPV.0165.4785 | CONCRETE STAINING PREVIOUSLY CONSTRUCTED STRUCTURE | SF | 537,370 |
| SPV.0165.4786 | CONCRETE STAINING MULTI-COLOR PREVIOUSLY CONSTRUCTED STRUCTURE | SF | 4,380 |

ALL BID ITEMS ARE CATEGORY 4800

William C. Dreher SDR
09/10/15

## TOTAL ESTIMATED QUANTITIES

SPV.0165.4786 CONCRETE STAINING MULTI-COLOR PREVIOUSLY CONSTRUCTED STRUCTURE

| STRUCTURE NUMBER | PREVIOUS PROJECT ID | QUANTITY (SF) | MODIFIED CONC SURFACE FINISH AREA (SF) ☆ |
|---|---|---|---|
| R-40-618 | 1060-33-80 | 830 | 830 |
| R-40-619 | 1060-33-80 | 1,090 | 1,090 |
| R-40-620 | 1060-33-80 | 1,350 | ~~1,350~~ |
| MINOR RETAINING WALL R-1 | 1060-33-80 | 1,110 | 1,110 |

## GENERAL NOTES

THESE PLANS ARE FOR THE CONCRETE STAINING OF PREVIOUSLY CONSTRUCTED STRUCTURES.

ALL WORK SHALL BE PERFORMED IN ACCORANCE WITH THE SPECIAL PROVISIONS "CONCRETE STAINING PREVIOUSLY CONSTRUCTED STRUCTURE" AND "CONCRETE STAINING MULTI-COLOR PREVIOUSLY CONSTRUCTED STRUCTURE"

FOR STRUCTURE AESTHETIC SHEETS OF PREVIOUSLY CONSTRUCTED STRUCTURES, SEE "FOR INFORMATION ONLY" PLAN SHEETS LOCATED AFTER THE ROADWAY CROSS SECTION SHEETS.

Addendum No. 03
ID 1060-33-81
Revised Sheet 3934
September 14, 2015

## LEGEND

☆ FOR INFORMATION ONLY. MODIFIED CONCRETE SURFACE FINISH IS INCIDENTAL TO THE BID ITEMS SPV.0165.4785 AND SPV.0165.4786.

## LIST OF DRAWINGS

1. CONCRETE STAINING QUANTITIES
2. STAINING EXISTING STRUCTURES (OVERVIEW 1 OF 3)
3. STAINING EXISTING STRUCTURES (OVERVIEW 2 OF 3)
4. STAINING EXISTING STRUCTURES (OVERVIEW 3 OF 3)


STRUCTURES DESIGN CONTACTS
BRIDGE OFFICE:
WILLIAM DREHER (608) 266-8489
CONSULTANT:
KARL SCHMID (414) 272-2426


| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 3 | 9/10/15 | ADDED MODIFIED SURF FINISH AREA | KES |
| 1 | 8/13/15 | STAINING ADD'L STRUCTURES | KES |

WISCONSIN PROFESSIONAL ENGINEER
KARL E. SCHMID
E-30812
MILWAUKEE, WI
9/9/2015

FORWARD 45

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED _____ _____
CHIEF STRUCTURES DESIGN ENGINEER DATE

CONC STAIN EXST STRUCTURES

ZOO INTERCHANGE

| COUNTY | TOWN/CITY/~~VILLAGE~~ |
|---|---|
| MILWAUKEE | WAUWATOSA/WEST ALLIS |

DESIGN SPEC. N/A

| DESIGNED BY | DESIGN CK'D. | DRAWN BY | PLANS CK'D. |
|---|---|---|---|
| KES | EKM | KES | KES |

CONCRETE STAINING QUANTITIES

SHEET 1 OF 4

3934

STATE PROJECT NUMBER
1060-33-81

8 8

Addendum No. 03
ID 1060-33-81
Revised Sheet 4141
September 14, 2015

| STATE PROJECT NUMBER |
|---|
| 1060-33-81 |

## ESTIMATED QUANTITIES

| ITEM NO. | BID ITEM | UNIT | PHASE 1 SEGMENT A | PHASE 1 SEGMENT B | PHASE 2 SEGMENT B | PHASE 2 SEGMENT C | TOTAL |
|---|---|---|---|---|---|---|---|
| 502.3200 | PROTECTIVE SURFACE TREATMENT | SY | - | 21 | 5 | - | 26 |
| 513.2000.0005 | RAILING PIPE R-40-507 | LS | - | - | - | - | 1 |
| 516.0500 | RUBBERIZED MEMBRANE WATERPROOFING | SY | 4 | 2 | 1 | 3 | 10 |
| 517.1010.S.0030 | CONCRETE STAINING R-40-507 | SF | 2,982 | 3,054 | 615 | 956 | 7,615 |
| ▲ 517.1050.S.0008 | ARCHITECTURAL SURFACE TREATMENT R-40-507 | SF | 2,861 | 3,078 | 619 | 962 | 7,520 |
| 612.0206 | PIPE UNDERDRAIN UNPERFORATED 6-INCH | LF | 28 | - | - | - | 28 |
| 612.0406 | PIPE UNDERDRAIN WRAPPED 6-INCH | LF | 154 | 168 | 41 | 65 | 428 |
| SPV.0060.4175 | CONCRETE BASE SLEEVES | EACH | 1 | - | - | 1 | 2 |
| SPV.0165.4710 | WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/QMP | SF | 3,091 | 3,328 | 680 | 994 | 8,093 |
| SPV.0165.4770 | TEMPORARY WALL WIRE FACED MECHANICALLY STABILIZED EARTH LRFD/QMP | SF | - | 554 | - | - | 554 |
| | NON BID ITEMS | | | | | | |
| | PREFORMED JOINT FILLER | SIZE | | | | | 3/4", 1", 1 1/2" |
| | NON-BITUMINOUS JOINT SEALER | SIZE | | | | | 1" |
| | NAME PLATE | EACH | | | | | 1 |
| | EXPANDED POLYSTYRENE | SIZE | | | | | 3/4", 1" |

ALL ITEMS ARE CATEGORY 3080

▲ SEE R-40-525 PLANS FOR TEST PANEL APPROVAL REQUIREMENTS PRIOR TO CASTING PRODUCTION PANELS FOR THIS STRUCTURE.

## DESIGN DATA:

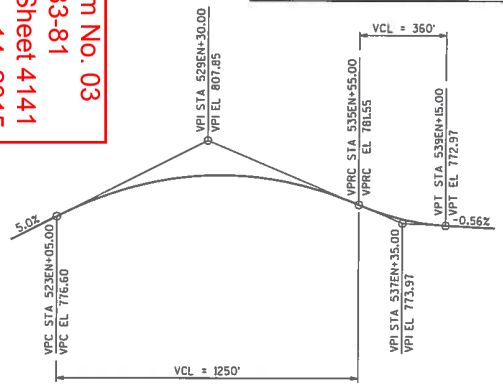
DESIGN SPECIFICATIONS:
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION, 2012

LIVE LOAD:
LIVE LOAD SURCHARGE (ROADWAY): 240 PSF

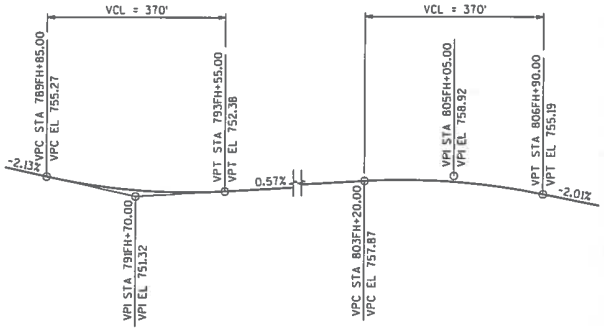
MATERIAL PROPERTIES:
CONCRETE MASONRY RETAINING WALL f'c = 4,000 PSI
PRECAST CONCRETE WALL PANELS f'c = 4,000 PSI
BAR STEEL REINFORCEMENT fy = 60,000 PSI

DESIGN THE MSE WALL IN FRONT OF THE ABUTMENT BODY TO RESIST THE FORCE FROM ALL HORIZONTAL EARTH PRESSURE ACTING ON THE BACK OF THE ABUTMENT BELOW BEAM SEATS AND LIVE LOAD VERTICAL SURCHARGE OF 240 PSF.

DESIGN THE MSE WALL ADJACENT TO NORTH ABUTMENT OF BRIDGE B-40-850 FOR A HORIZONTAL BACKSLOPE BEHIND THE WALL AND A LIVE LOAD VERTICAL SURCHARGE OF 240 PSF.




PROFILE GRADE LINE RAMP EN
R/L 'EN'




PROFILE GRADE LINE RAMP FH
R/L 'FH'

## GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), MILWAUKEE COUNTY ZONE, NAD 83 (2007). ALL STATIONS AND ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM NAVD 88 (2007).

ALL DIMENSIONS ARE ALONG THE FRONT FACE OF WALL, UNLESS SHOWN OTHERWISE.

THE UTILITY INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATIONS AS TO TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE. UTILITIES LABELED AS PROPOSED MAY BE INSTALLED BY OTHERS PRIOR TO THIS CONTRACT.

THESE PLANS ARE FOR A PRECAST CONCRETE PANEL MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALL.

PLANS, ELEVATIONS AND DETAILS SHOWN ON THESE DRAWINGS ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS, HEIGHTS AND DETAILS COMMON TO THE WALL SYSTEM SELECTED. THE CONTRACTOR SHALL VERIFY THAT THE WALL SYSTEM SELECTED WILL CONFORM TO THE REQUIRED ALIGNMENTS AND DETAILS.

SEE SPECIAL PROVISIONS FOR AESTHETIC TREATMENT TO WALL.

THE CONTRACTOR SHALL PROVIDE COMPLETE DESIGN, PLANS, DETAILS, AND SHOP DRAWINGS FOR THE RETAINING WALL IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE RETAINING WALL MANUFACTURER SHALL PROVIDE TECHNICAL ASSISTANCE TO THE CONTRACTOR DURING CONSTRUCTION. THESE ITEMS ARE INCLUDED IN THE BID ITEM WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD.

THE COST OF ALL EXCAVATION REQUIRED TO INSTALL THE MSE RETAINING WALL IS INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/QMP".

THE COST OF FURNISHING AND PLACING THE UNREINFORCED CONCRETE LEVELING PAD UNDER THE MSE PRECAST WALL PANELS IS INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/QMP".

THE COST OF FURNISHING AND PLACING MSE BACKFILL WITHIN THE REINFORCED SOIL ZONE IS TO BE INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/QMP".

THE PLAN QUANTITY FOR THE ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/QMP" IS BASED ON A WALL HEIGHT MEASURED FROM THE TOP OF THE LEVELING PAD TO THE TOP OF WALL AS SHOWN IN THE PLANS. THE TOP OF LEVELING PAD IS ASSUMED TO BE AT LEAST 2'-0" BELOW FINISHED GRADE FOR SEGMENT A AND C AND 3'-0" FOR SEGMENTS B. (3)

THE MAXIMUM VALUE OF THE ANGLE OF INTERNAL FRICTION OF THE BACKFILL MATERIAL IN THE REINFORCED ZONE SHALL BE ASSUMED TO BE 30° WITHOUT CERTIFIED TEST VALUES.

ONLY WALL CONCRETE PANEL MSE WALL SYSTEMS THAT USE STRIP TYPE SOIL REINFORCEMENT THAT ARE HINGED AT THE PANEL CONNECTION CAN BE USED FOR THIS PROJECT.

SOIL REINFORCEMENT MAY BE PLACED UP TO A MAXIMUM OF 15° FROM PERPENDICULAR IF NECESSARY TO AVOID INTERFERENCE WITH ITEMS BEHIND THE WALL. ANGLES GREATER THAN 15° REQUIRE APPROVAL FROM THE BUREAU OF STRUCTURES DESIGN SECTION.

WALL SEGMENT DESIGNATIONS DO NOT CORRESPOND TO ROADWAY STAGING DESIGNATIONS.

THE QUANTITIES AND REINFORCEMENT DETAILS ARE BASED ON AN ASSUMED CONCRETE WALL PANEL THICKNESS OF 7 INCHES. FOR PANEL THICKNESSES DIFFERENT THAN 7 INCHES, THE CONTRACTOR SHALL VERIFY REINFORCEMENT BAR DETAILS AND QUANTITIES AND WILL BE RESPONSIBLE FOR ANY QUANTITY VARIATIONS.

CONCRETE MASONRY AND BAR STEEL REINFORCEMENT FOR THE CAST-IN-PLACE COPING IS INCIDENTAL TO THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/QMP".

BAR STEEL REINFORCEMENT IN THE COPING SHALL BE EPOXY COATED.

BAR STEEL REINFORCEMENT SHALL HAVE 2" CLEAR COVER, UNLESS SHOWN OTHERWISE.

BEVEL ALL EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE SHOWN OR NOTED.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE. BAR DIMENSIONS ARE OUT TO OUT OF BAR.

COORDINATE THE CONSTRUCTION OF WALL R-40-507 WITH THE CONSTRUCTION OF THE NORTH ABUTMENT OF BRIDGE B-40-850, PROPOSED LIGHTING CONDUITS AND FOOTINGS.

SEE STANDARD DETAIL FOR NAME PLATE DETAILS.

THE STANDARD PANEL SIZE SHALL BE 5'HIGH X 5'WIDE. 5'HIGH X 10'WIDE PANELS WILL NOT BE ALLOWED.

## WALL EXTERNAL STABILITY EVALUATION

| DIMENSIONS | EVALUATED LOCATIONS | | | |
|---|---|---|---|---|
| WALL HEIGHT (FEET) | 28.6 | 36 | 17.1 | 14.2 |
| EXPOSED WALL HEIGHT (FEET) | 26.6 | 33 | 14.1 | 11.2 |
| MINIMUM LENGTH OF REINFORCEMENT (FEET) * | 20 | 26.0 | 13.5 | 9.9 |
| WALL STATION | 798FH+50 | 799FH+00 | 800FH+00 | 801FH+50 |
| BORING USED | CB-17 | CB-17 | CB-5 | CB-18 |
| CAPACITY TO DEMAND RATIO (CDR) | | | | |
| ECCENTRICITY (CDR > 1.0) | 1.28 | 1.33 | 1.02 | 1.36 |
| DRAINED BEARING CAPACITY (CDR > 1.0) | 1.71 | 1.96 | 1.48 | 2.21 |
| UNDRAINED BEARING CAPACITY (CDR > 1.0) | 1.14 | 1.09 | 1.22 | 1.47 |
| DRAINED SLIDING (CDR > 1.0) | 1.23 | 1.57 | 1.29 | 1.64 |
| UNDRAINED SLIDING (CDR > 1.0) | 1.21 | 1.46 | 1.53 | 1.97 |
| OVERALL/GLOBAL STABILITY (CDR > 1.0) | ------- | 1.02 | ---- | ----- |

---- GLOBAL STABILITY DEEMED NOT CRITICAL

* THE LENGTHS PROVIDED IN THE TABLE ARE THE MINIMUM REQUIRED REINFORCEMENT LENGTHS BASED UPON THE MINIMUM DESCRIBED IN THE WALL SYSTEM SPECIAL PROVISIONS OR EXTERNAL AND GLOBAL STABILITY AT THE DESIGNATED LOCATIONS. THESE DESIGNATED LOCATIONS REPRESENT TYPICAL AND CRITICAL WALL LOCATIONS, BUT SHALL NOT BE CONSIDERED ALL INCLUSIVE. THE CONTRACTOR DESIGNED LENGTHS SHALL MEET OR EXCEED THE MINIMUM VALUES REPRESENTED IN THE TABLE AT THESE DESIGNATED LOCATIONS.

## SOIL PARAMETERS

| SOIL DESCRIPTION | UNIT WEIGHT (PCF) | SHORT-TERM (UNDRAINED) UNDRAINED SHEAR STRENGTH (PSF) | SHORT-TERM (UNDRAINED) FRICTION ANGLE (DEGREES) | LONG-TERM (DRAINED) EFFECTIVE COHESION (PSF) | LONG-TERM (DRAINED) EFFECTIVE FRICTION ANGLE (DEGREES) |
|---|---|---|---|---|---|
| MSE BACKFILL | 120 | 0 | 30 | 0 | 30 |
| GRANULAR FILL | 120 | 0 | 30 | 0 | 30 |
| SAND FILL | 115-125 | 0 | 30 | 0 | 30-32 |
| CLAY FILL | 124 | 1000 | 0 | 0 | 30 |
| LEAN CLAY/SILTY CLAY (VERY STIFF TO HARD) | 125 | 2000-4000 | 0 | 0-200 | 30-32 |
| SANDS AND SILTY SANDS (MEDIUM DENSE TO DENSE) | 120-125 | 0 | 30-34 | 0 | 30-34 |
| SILT/SANDY SILT/GRAVEL (DENSE TO VERY DENSE) | 125-130 | 0 | 33-35 | 0 | 33-35 |

WISCONSIN
MOHAMMED H. ZAGLOUL
E-26970
MILWAUKEE
WISCONSIN
PROFESSIONAL ENGINEER
9/8/2015

William C. Dreher KAR 09/09/15

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 3 | 9/10/15 | QUANTITY AND NOTES REVISION | MHZ |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE R-40-507

DRAWN BY RT | PLANS CK'D. SWS

QUANTITIES, GENERAL NOTES & PROFILES

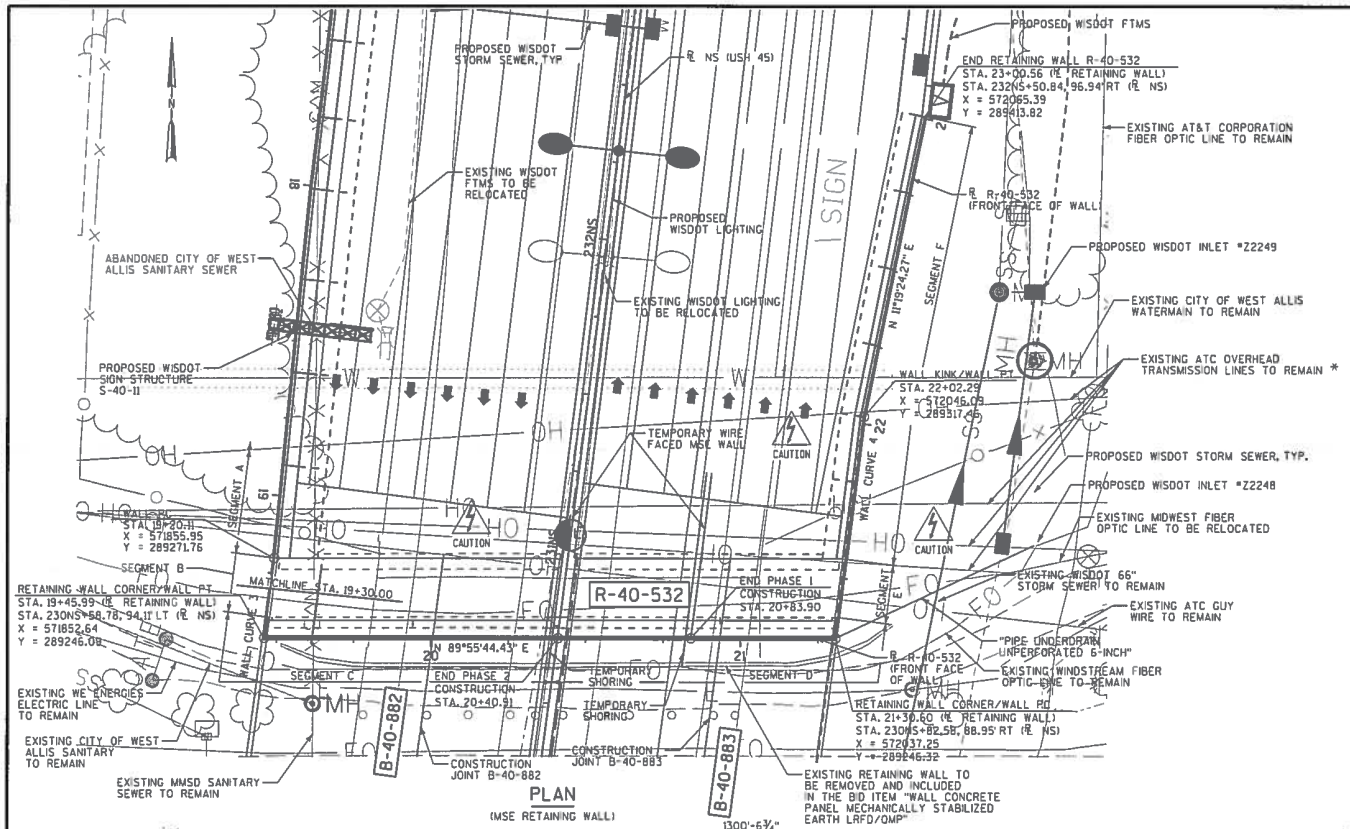
SHEET 2 OF 9

4141

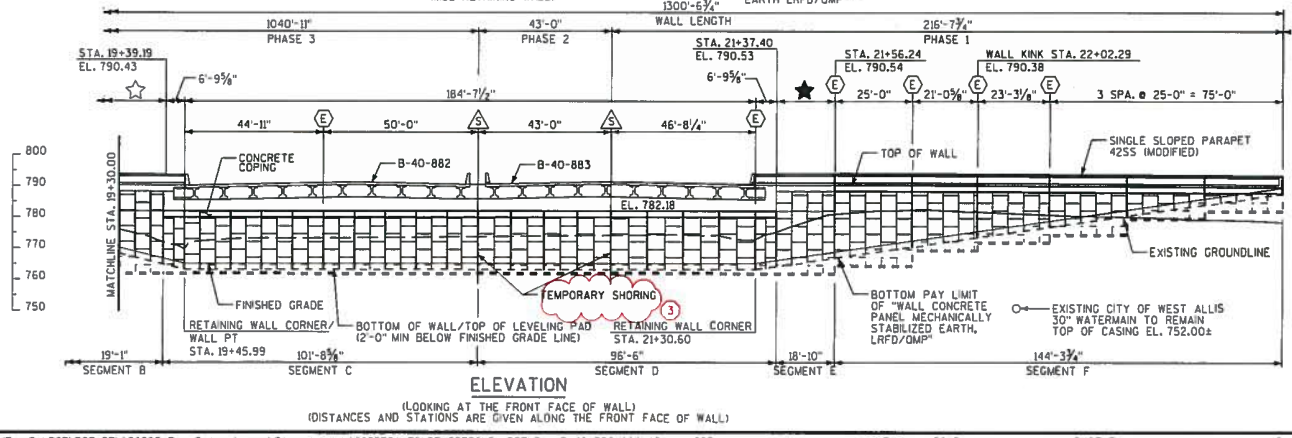
FILE NAME : S:\DOT\DOT_SE\120293-Zoo Interchange\Structures\10603381_Z2\REVISIIONS_ADDENDUM\R40507_080102_gn_ADD3.dgn PLOT DATE : 9/8/2015 PLOT BY : mmyaskovsky PLOT NAME : *FILE* PLOT SCALE : 1:4

| STATE PROJECT NUMBER |
|---|
| 1060-33-81 |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4336
September 14, 2015




PLAN
(MSE RETAINING WALL)




ELEVATION
(LOOKING AT THE FRONT FACE OF WALL)
(DISTANCES AND STATIONS ARE GIVEN ALONG THE FRONT FACE OF WALL)

## NOTE:

* CONSTRUCTION OF RETAINING WALL R-40-532 MUST BE ACCOMPLISHED BENEATH ENERGIZED OVERHEAD TRANSMISSION LINES OWNED AND OPERATED BY THE AMERICAN TRANSMISSION COMPANY (ATC) AND WE ENERGIES. THE CONTRACTOR IS ADVISED THAT LOW OVERHEAD EQUIPMENT AND INSTALLATION TECHNIQUES MAY BE REQUIRED TO MAINTAIN SAFE CLEARANCES FROM THESE LINES. NOTIFY AND COORDINATE ALL CONSTRUCTION ACTIVITY WITH ATC PRIOR TO CONSTRUCTION.

William C. Duchen KAR 09/09/15

## LEGEND

- INDICATES FINAL ROADWAY LANE LOCATIONS AND DIRECTION OF TRAVEL
- (E) EXPANSION JOINT
- (S) VERTICAL SLIP JOINT
- ☆ STRUCTURE APPROACH SLAB SEE B-40-882 PLAN FOR DETAILS
- ★ STRUCTURE APPROACH SLAB SEE B-40-883 PLAN FOR DETAILS

WISCONSIN
MOHAMMED H. ZAGLOUL
E-26970
MILWAUKEE
WISCONSIN
PROFESSIONAL ENGINEER
9/8/2015

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 3 | 9/10/15 | NOTES REVISION | MHZ |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE R-40-532

DRAWN BY AJA | PLANS CK'D. MHZ

GENERAL PLAN & ELEVATION (3 OF 3)

SHEET 3 OF 25

4336
4336

FILE NAME : S:\DOT\DOT_SE\120293-Zoo Interchange\Structures\10603381_Z2\REVISIONS_ADDENDUM\R-40-532_080103_gp_ADD3.dgn
PLOT DATE : 9/8/2015
PLOT BY : mmyaskovsky
PLOT NAME : *FILE*
PLOT SCALE : 1:40

Addendum No. 03
ID 1060-33-81
Revised Sheet 4337
September 14, 2015

STATE PROJECT NUMBER
1060-33-81

## TOTAL ESTIMATED QUANTITIES

| ITEM NO. | BID ITEM | UNIT | SEGMENT A | SEGMENT B | SEGMENT C | SEGMENT D | SEGMENT E | SEGMENT F | TOTAL |
|---|---|---|---|---|---|---|---|---|---|
| 502.3200 | PROTECTIVE SURFACE TREATMENT | SY | 967 | ------- | 12 | 12 | ------- | 103 | 1,094 |
| 504.0500 | CONCRETE MASONRY RETAINING WALLS | CY | 1,285 | ------- | ------- | ------- | ------- | 85 | 1,370 |
| 505.0615 | BAR STEEL REINFORCEMENT HS COATED RETAINING WALLS | LB | 106,832 | ------- | ------- | ------- | ------- | 11,124 | 117,956 |
| 511.1200.0007 | TEMPORARY SHORING R-40-532 | SF | ------- | ------- | 1,007 | 984 | ------- | ------- | 1,991 |
| 516.0500 | RUBBERIZED MEMBRANE WATERPROOFING | SY | 220 | 5 | 10 | 6 | 5 | 31 | 276 |
| 517.1010.S.0042 | CONCRETE STAINING R-40-532 | SF | 6,930 | ------- | 246 | 233 | ------- | 854 | 8,263 |
| 517.1015.S.0004 | CONCRETE STAINING MULTI-COLOR R-40-532 | SF | 6,986 | 386 | 1,602 | 1,521 | 412 | 1,431 | 12,338 |
| ▲ 517.1050.S.0020 | ARCHITECTURAL SURFACE TREATMENT R-40-532 | SF | 8,328 | 404 | 1,754 | 1,666 | 431 | 1,643 | 14,226 |
| 612.0206 | PIPE UNDERDRAIN UNPERFORATED 6-INCH | LF | 20 | ------- | ------- | ------- | ------- | 71 | 91 |
| 612.0406 | PIPE UNDERDRAIN WRAPPED 6-INCH | LF | 921 | 20 | 102 | 97 | 19 | 145 | 1,304 |
| 612.0806 | APRON ENDWALLS FOR UNDERDRAIN REINFORCED CONCRETE 6-INCH | EACH | 1 | ------- | ------- | ------- | ------- | ------- | 1 |
| 652.0125 | CONDUIT RIGID METALLIC 2-INCH | LF | ------- | ------- | ------- | ------- | ------- | 12 | 12 |
| 652.0225 | CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH | LF | ------- | ------- | ------- | ------- | ------- | 278 | 278 |
| SPV.0060.4105 | ANCHOR ASSEMBLIES NOISE BARRIER STRUCTURES | EACH | 172 | ------- | ------- | ------- | ------- | ------- | 172 |
| SPV.0060.4135 | ANCHOR SLAB INLET COVER SPECIAL | EACH | 4 | ------- | ------- | ------- | ------- | ------- | 4 |
| SPV.0165.4710 | WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/QMP | SF | 9,192 | 450 | 2,771 | 1,023 | 476 | 1,916 | 15,828 ③ |
| SPV.0165.4770 | TEMPORARY WALL WIRE FACED MECHANICALLY STABILIZED EARTH LRFD/QMP | SF | ------- ③ | ------- ③ | 756 ③ | 756 ③ | ------- ③ | ------- ③ | 1,512 |
| | | | | | | | | | |
| | NON-BID ITEMS | | | | | | | | |
| | PREFORMED JOINT FILLER | SIZE | ------- | ------- | ------- | ------- | ------- | ------- | 3/4", 1-1/2" |
| | NON-BITUMINOUS JOINT FILLER | SIZE | ------- | ------- | ------- | ------- | ------- | ------- | 3/4", 1-1/2" |
| | CORK FILLER | SIZE | ------- | ------- | ------- | ------- | ------- | ------- | 1" |
| | EXPANDED POLYSTYRENE | SIZE | ------- | ------- | ------- | ------- | ------- | ------- | 1" |
| | NAME PLATE | EACH | ------- | ------- | ------- | ------- | ------- | ------- | 1 |

ALL ITEMS ARE CATEGORY 3200

▲ SEE R-40-525 PLANS FOR TEST PANEL APPROVAL REQUIREMENTS PRIOR TO CASTING PRODUCTION PANELS FOR THIS STRUCTURE

## CONSTRUCTION PHASING NOTES

PHASE 1 - UPRR ACTIVITIES

1. INSTALL INSIDE GUARDRAIL SAFETY PROTECTION ON ALL TRACK RAILS THAT ARE WITHIN 25 FEET HORIZONTALLY OF THE PIER CRASH WALL.
2. INSTALL A TEMPORARY AT-GRADE CROSSING FOR CONSTRUCTION ACTIVITIES AT THE LOCATION ON THE "GENERAL PLAN & ELEVATION" SHEET.

PHASE 2 - CONTRACTOR ACTIVITIES

1. CONSTRUCT APPROACHES TO TEMPORARY AT-GRADE CROSSING.
2. CONSTRUCT TEMPORARY ACCESS GATE AND TEMPORARY FENCING.

PHASE 3 - UPRR ACTIVITIES

1. INSTALL A LOCK ON THE CONTRACTOR TEMPORARY ACCESS GATE THAT ACCESSES THE TEMPORARY AT-GRADE CROSSING. UPRR WILL OPEN THE LOCK ON EVERY OCCASION THAT THE CONTRACTOR NEEDS ACCESS AND A FLAGMAN IS PRESENT, AND CLOSE THE LOCK WHEN THE FLAGMAN LEAVES THE JOBSITE.

PHASE 4 - CONTRACTOR ACTIVITIES

1. SHIFT NB USH 45 TRAFFIC WEST ON EXISTING BRIDGE B-40-127. TWO LANES OF TRAFFIC MUST BE MAINTAINED ON THE EXISTING BRIDGE DURING STRUCTURE REMOVAL.
2. PERFORM PARTIAL REMOVAL OF THE EXISTING BRIDGE B-40-127 AS SHOWN IN PHASE 1 REMOVAL TYPICAL SECTION. DEBRIS CONTAINMENT WILL BE REQUIRED FOR THE REMOVAL.
3. CONSTRUCT PHASE 1 OF B-40-883 AND RETAINING WALLS R-40-532 AND R-40-534. TEMPORARY SHORING RAILROAD, TEMPORARY SHORING AND TEMPORARY WALL WIRE FACED MSE WILL BE REQUIRED FOR THE CONSTRUCTION. SEE R-40-532 AND R-40-534 PLANS FOR ADDITIONAL SHORING INFORMATION.
4. WHEN PHASE 1 CONSTRUCTION IS COMPLETED, THE REMAINDER OF BRIDGE B-40-127 WILL BE REMOVED. DEBRIS CONTAINMENT WILL BE REQUIRED FOR THE REMOVAL. PHASE 2 CONSTRUCTION OF B-40-883 AND RETAINING WALLS R-40-532 AND R-40-534 WILL THEN BE COMPLETED WHILE MAINTAINING 2 LANES OF TRAFFIC ON THE PHASE 1 PORTION OF THE PROPOSED BRIDGE.

PHASE 5 - UPRR ACTIVITIES

1. REMOVE THE LOCK AFTER THE TEMPORARY AT-GRADE CROSSING IS NO LONGER IN SERVICE.
2. REMOVE THE TEMPORARY AT-GRADE CROSSING.

PHASE 6 - CONTRACTOR ACTIVITIES

1. REMOVE THE TEMPORARY ACCESS GATE, TEMPORARY FENCING, AND TEMPORARY APPROACHES.

### SEGMENT A

| WALL STATION | TOP OF WALL ELEVATION | FINISHED GRADE ELEVATION |
|---|---|---|
| 10+00.00 | 777.06 | 777.13 |
| 10+25.00 | 777.43 | 776.48 |
| 10+50.00 | 777.85 | 775.82 |
| 10+75.00 | 778.30 | 775.17 |
| 11+00.00 | 778.78 | 774.51 |
| 11+25.00 | 779.30 | 773.86 |
| 11+50.00 | 779.84 | 773.20 |
| 11+75.00 | 780.45 | 772.55 |
| 12+00.00 | 780.98 | 772.02 |
| 12+25.00 | 781.51 | 771.59 |
| 12+50.00 | 782.04 | 771.16 |
| 12+75.00 | 782.57 | 770.74 |
| 13+00.00 | 783.09 | 770.31 |
| 13+25.00 | 783.61 | 770.31 |
| 13+50.00 | 784.14 | 770.61 |
| 13+75.00 | 784.67 | 770.92 |
| 14+00.00 | 785.20 | 771.74 |
| 14+25.00 | 785.71 | 772.91 |
| 14+50.00 | 786.19 | 774.07 |
| 14+75.00 | 786.65 | 775.23 |
| 15+00.00 | 787.07 | 776.39 |
| 15+25.00 | 787.46 | 777.56 |
| 15+50.00 | 787.83 | 778.31 |
| 15+75.00 | 788.17 | 778.86 |
| 16+00.00 | 788.48 | 779.42 |
| 16+25.00 | 788.77 | 779.83 |
| 16+50.00 | 789.03 | 780.05 |
| 16+75.00 | 789.27 | 780.28 |
| 17+00.00 | 789.49 | 780.50 |
| 17+25.00 | 789.67 | 780.73 |
| 17+50.00 | 789.83 | 780.90 |
| 17+75.00 | 789.97 | 780.86 |
| 18+00.00 | 790.08 | 780.82 |
| 18+25.00 | 790.17 | 780.78 |
| 18+50.00 | 790.24 | 780.74 |
| 18+75.00 | 790.28 | 780.70 |
| 19+00.00 | 790.37 | 775.98 |
| 19+20.11 | 790.43 | 771.18 |

### SEGMENT B

| WALL STATION | TOP OF WALL ELEVATION | FINISHED GRADE ELEVATION |
|---|---|---|
| 19+20.11 | 790.43 | 771.18 |
| 19+25.00 | 790.45 | 770.01 |
| 19+39.19 | 790.43 | 766.62 |

### SEGMENT C

| WALL STATION | TOP OF WALL ELEVATION | FINISHED GRADE ELEVATION |
|---|---|---|
| 19+39.19 | 782.18 | 766.62 |
| 19+45.99 | 782.18 | 765.00 |
| 19+50.00 | 782.18 | 765.00 |
| 19+75.00 | 782.18 | 765.00 |
| 20+00.00 | 782.18 | 765.00 |
| 20+25.00 | 782.18 | 765.00 |
| 20+50.00 | 782.18 | 765.00 |
| 20+75.00 | 782.18 | 765.00 |
| 20+83.90 | 782.18 | 765.00 |

### SEGMENT D

| WALL STATION | TOP OF WALL ELEVATION | FINISHED GRADE ELEVATION |
|---|---|---|
| 20+83.90 | 782.18 | 765.00 |
| 21+00.00 | 782.18 | 765.00 |
| 21+25.00 | 782.18 | 765.00 |
| 21+30.60 | 782.18 | 765.00 |
| 21+37.40 | 782.18 | 765.98 |

### SEGMENT E

| WALL STATION | TOP OF WALL ELEVATION | FINISHED GRADE ELEVATION |
|---|---|---|
| 21+37.40 | 790.53 | 765.98 |
| 21+50.00 | 790.57 | 767.78 |
| 21+56.24 | 790.54 | 768.67 |

### SEGMENT F

| WALL STATION | TOP OF WALL ELEVATION | FINISHED GRADE ELEVATION |
|---|---|---|
| 21+56.24 | 790.54 | 768.67 |
| 21+75.00 | 790.46 | 771.35 |
| 22+00.00 | 790.39 | 774.93 |
| 22+25.00 | 790.29 | 778.50 |
| 22+50.00 | 790.18 | 782.08 |
| 22+75.00 | 790.09 | 785.65 |
| 23+00.00 | 789.92 | 789.23 |
| 23+00.56 | 789.92 | 789.31 |

## RAILROAD NOTES

RR1. THE PROPOSED GRADE SEPARATION PROJECT SHALL NOT INCREASE THE QUANTITY AND/OR CHARACTERISTICS OF THE FLOW IN THE RAILROAD'S DITCHES AND/OR DRAINAGE STRUCTURES.

RR2. THE ELEVATION OF THE EXISTING TOP-OF-RAIL PROFILE SHALL BE VERIFIED BEFORE BEGINNING CONSTRUCTION. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE RAILROAD PRIOR TO CONSTRUCTION.

RR3. ALL SHORING SYSTEMS THAT IMPACT THE RAILROAD'S OPERATIONS AND/OR SUPPORTS THE RAILROAD'S EMBANKMENT SHALL BE DESIGNED AND CONSTRUCTED PER CURRENT RAILROAD GUIDELINES FOR TEMPORARY SHORING.

RR4. ALL DEMOLITIONS WITHIN THE RAILROAD'S RIGHT-OF-WAY AND/OR DEMOLITION THAT MAY IMPACT THE RAILROAD'S TRACKS OR OPERATIONS SHALL BE IN COMPLIANCE WITH THE RAILROAD'S DEMOLITION GUIDELINES.

RR5. ERECTION OVER THE RAILROAD'S RIGHT-OF-WAY SHALL BE DESIGNED TO MINIMIZE INTERRUPTION TO THE RAILROAD'S OPERATION, ENABLING THE TRACKS TO REMAIN OPEN TO TRAFFIC PER THE RAILROAD'S REQUIREMENTS.

RR6. RAILROAD REQUIREMENTS DO NOT ALLOW WORK WITHIN 50 FEET OF TRACK CENTERLINE WHEN A TRAIN PASSES THE WORK SITE AND ALL PERSONNEL MUST CLEAR THE AREA WITHIN 25 FEET OF THE TRACK CENTERLINE AND SECURE ALL EQUIPMENT.

RR7. ALL PERMANENT CLEARANCES SHALL BE VERIFIED BEFORE PROJECT CLOSING.

RR8. THE CONTRACTOR MUST SUBMIT A PROPOSED METHOD OF EROSION AND SEDIMENT CONTROL AND HAVE THE METHOD APPROVED BY THE RAILROAD PRIOR TO BEGINNING ANY GRADING ON THE PROJECT.

RR9. FALSE-WORK CLEARANCES SHALL COMPLY WITH MINIMUM CONSTRUCTION CLEARANCES.

RR10. FOR RAILROAD COORDINATION REFER TO THE RAILROAD'S COORDINATION REQUIREMENTS AS PART OF THE PROJECT SPECIAL PROVISIONS.

## GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS NOTED OTHERWISE.

ALL STATIONS AND ELEVATIONS ARE IN FEET. ELEVATIONS ARE REFERENCED TO THE (NAVD) NORTH AMERICAN VERTICAL DATUM OF 1988.

ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE NOTED.

ALL DIMENSIONS ARE ALONG THE FRONT FACE OF WALL UNLESS SHOWN OTHERWISE.

BAR STEEL REINFORCEMENT SHALL HAVE 2" CLEAR COVER UNLESS SHOWN OTHERWISE.

ONLY WALL CONCRETE PANEL MSE WALL SYSTEMS THAT USE STRIP TYPE SOIL REINFORCEMENT THAT ARE HINGED AT THE PANEL CONNECTION CAN BE USED FOR THIS PROJECT.

THE UTILITY INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATIONS AS TO TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE. UTILITIES LABELED AS PROPOSED MAY BE INSTALLED BY OTHERS PRIOR TO THIS CONTRACT.

THESE PLANS ARE FOR A PRECAST PANEL MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALL.

THE QUANTITIES AND REINFORCEMENT DETAILS ARE BASED ON AN ASSUMED CONCRETE WALL PANEL THICKNESS OF 7 INCHES. FOR PANEL THICKNESSES DIFFERENT THAN 7 INCHES, THE CONTRACTOR SHALL VERIFY REINFORCEMENT BAR DETAILS AND QUANTITIES AND WILL BE RESPONSIBLE FOR ANY QUANTITY VARIATIONS.

THE CONTRACTOR MUST COORDINATE THE CONSTRUCTION OF WALL R-40-532 WITH THE CONSTRUCTION OF BRIDGES B-40-882, B-40-883 AND NOISE BARRIER N-40-64.

THE CONTRACTOR SHALL PROVIDE COMPLETE DESIGN, PLANS, DETAILS, SPECIFICATIONS AND SHOP DRAWINGS FOR THE RETAINING WALLS IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE RETAINING WALL MANUFACTURER SHALL PROVIDE TECHNICAL ASSISTANCE TO THE CONTRACTOR DURING CONSTRUCTION. THE COST OF FURNISHING THESE ITEMS IS INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH, LRFD/QMP".

THE COST OF FURNISHING AND PLACING THE UNREINFORCED CONCRETE LEVELING PAD UNDER THE MSE PRECAST WALL PANELS IS INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH, LRFD/QMP".

THE COST OF FURNISHING AND PLACING MSE BACKFILL WITHIN THE REINFORCED ZONE IS TO BE INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH, LRFD/QMP".

THE VOLUME OF EARTHWORK REQUIRED TO INSTALL THE UNREINFORCED CONCRETE LEVELING PAD, MSE PRECAST WALL PANELS, MSE BACKFILL AND REINFORCING STRIPS IS INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH, LRFD/QMP".

ALL BAR STEEL REINFORCEMENT IN CAST-IN-PLACE CONCRETE TO BE EPOXY COATED.

THE QUANTITIES OF CONCRETE MASONRY AND BAR STEEL REINFORCEMENT FOR THE SEGMENT A AND SEGMENT F CAST-IN-PLACE ANCHOR SLAB, COPING, AND PARAPET ARE PAID FOR UNDER THE ITEMS "CONCRETE MASONRY RETAINING WALLS" AND "BAR STEEL REINFORCEMENT HS COATED RETAINING WALLS", RESPECTIVELY.

THE QUANTITIES OF CONCRETE MASONRY AND BAR STEEL REINFORCEMENT FOR SEGMENT C AND SEGMENT D CAST-IN-PLACE COPING ARE INCIDENTAL TO THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH, LRFD/QMP". ③

THE PLAN QUANTITY FOR THE ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH, LRFD/QMP" IS BASED ON A WALL HEIGHT MEASURED FROM THE TOP OF THE LEVELING PAD TO THE TOP OF WALL AS SHOWN IN THE PLANS. THE TOP OF LEVELING PAD IS ASSUMED TO BE AT LEAST 2'-0" BELOW FINISHED GRADE. WALL AREAS CONSTRUCTED OUTSIDE THESE LIMITS WILL NOT BE MEASURED FOR PAYMENT. ③

PLANS, ELEVATIONS AND DETAILS SHOWN ON THESE DRAWINGS ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS, HEIGHTS AND DETAILS COMMON TO THE WALL SYSTEM SELECTED. THE CONTRACTOR SHALL VERIFY THAT THE WALL SYSTEM SELECTED WILL CONFORM TO THE REQUIRED ALIGNMENTS AND DETAILS.

THE MAXIMUM VALUE OF THE ANGLE OF INTERNAL FRICTION OF THE WALL BACKFILL MATERIAL IN THE REINFORCED ZONE SHALL BE ASSUMED TO BE 30° WITHOUT CERTIFIED TEST VALUES.

THE EXISTING RETAINING WALL IN FRONT OF B-40-882 & B-40-883 NORTH ABUTMENTS IS TO BE REMOVED. THE REMOVAL IS TO BE INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/QMP".

WISCONSIN
MOHAMMED H. ZAGLOUL
E-26970
MILWAUKEE
WISCONSIN
PROFESSIONAL ENGINEER
9/9/15

William C. Dreher KAR 09/09/15

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| ③ | 9/10/15 | QUANTITY AND NOTES REVISION | MHZ |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE R-40-532

DRAWN BY AJA | PLANS CK'D. MHZ

GENERAL NOTES, QUANTITIES & ELEVATIONS

SHEET 4 OF 25 ③

4337
4337

FILE NAME : S:\DOT\DOT_SE\120293-Zoo Interchange\Structures\10603381_Z2\REVISIIONS_ADDENDUM\R-40-532_080104_gn_ADD3.dgn
PLOT DATE : 9/8/2015
PLOT BY : mmyaskovsky
PLOT NAME : *FILE*
PLOT SCALE : 1:4

**Division 1 EWG**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11+29 AH | 1128.83 | 0.00 | 39.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11+50 | 1150.00 | 21.17 | 36.38 | 0.00 | 0.00 | 0.00 | 29.73 | 0.00 | 0.00 | 0.00 | 29.73 | 0.00 | 0.00 | 0.00 | 29.73 |
| 12+00 | 1200.00 | 50.00 | 35.40 | 0.00 | 0.00 | 0.00 | 66.46 | 0.00 | 0.00 | 0.00 | 96.20 | 0.00 | 0.00 | 0.00 | 96.20 |
| 12+50 | 1250.00 | 50.00 | 36.13 | 0.00 | 0.00 | 0.00 | 66.23 | 0.00 | 0.00 | 0.00 | 162.43 | 0.00 | 0.00 | 0.00 | 162.43 |
| 13+00 | 1300.00 | 50.00 | 36.42 | 0.00 | 0.00 | 0.00 | 67.18 | 0.00 | 0.00 | 0.00 | 229.60 | 0.00 | 0.00 | 0.00 | 229.60 |
| 13+50 | 1350.00 | 50.00 | 36.80 | 0.00 | 0.00 | 0.00 | 67.80 | 0.00 | 0.00 | 0.00 | 297.40 | 0.00 | 0.00 | 0.00 | 297.40 |
| 14+00 | 1400.00 | 50.00 | 35.05 | 0.00 | 0.00 | 0.00 | 66.53 | 0.00 | 0.00 | 0.00 | 363.93 | 0.00 | 0.00 | 0.00 | 363.93 |
| 14+50 | 1450.00 | 50.00 | 36.32 | 0.00 | 0.00 | 0.00 | 66.08 | 0.00 | 0.00 | 0.00 | 430.01 | 0.00 | 0.00 | 0.00 | 430.01 |
| 15+00 | 1500.00 | 50.00 | 38.66 | 0.00 | 0.00 | 0.00 | 69.43 | 0.00 | 0.00 | 0.00 | 499.44 | 0.00 | 0.00 | 0.00 | 499.44 |
| 15+50 | 1550.00 | 50.00 | 40.05 | 0.00 | 0.00 | 0.00 | 72.88 | 0.00 | 0.00 | 0.00 | 572.32 | 0.00 | 0.00 | 0.00 | 572.32 |
| 16+00 | 1600.00 | 50.00 | 40.11 | 0.00 | 0.00 | 0.00 | 74.22 | 0.00 | 0.00 | 0.00 | 646.54 | 0.00 | 0.00 | 0.00 | 646.54 |
| 16+50 | 1650.00 | 50.00 | 40.39 | 0.00 | 0.00 | 0.00 | 74.54 | 0.00 | 0.00 | 0.00 | 721.07 | 0.00 | 0.00 | 0.00 | 721.07 |
| 17+00 | 1700.00 | 50.00 | 39.39 | 0.00 | 0.00 | 0.00 | 73.87 | 0.00 | 0.00 | 0.00 | 794.95 | 0.00 | 0.00 | 0.00 | 794.95 |
| 17+50 | 1750.00 | 50.00 | 38.59 | 0.00 | 0.00 | 0.00 | 72.20 | 0.00 | 0.00 | 0.00 | 867.15 | 0.00 | 0.00 | 0.00 | 867.15 |
| 18+00 | 1800.00 | 50.00 | 39.48 | 0.00 | 0.00 | 0.00 | 72.29 | 0.00 | 0.00 | 0.00 | 939.44 | 0.00 | 0.00 | 0.00 | 939.44 |
| 18+50 | 1850.00 | 50.00 | 41.21 | 0.00 | 0.00 | 0.00 | 74.71 | 0.00 | 0.00 | 0.00 | 1014.15 | 0.00 | 0.00 | 0.00 | 1014.15 |
| 19+00 | 1900.00 | 50.00 | 39.97 | 0.00 | 0.00 | 0.00 | 75.17 | 0.00 | 0.00 | 0.00 | 1089.32 | 0.00 | 0.00 | 0.00 | 1089.32 |
| 19+50 | 1950.00 | 50.00 | 38.99 | 0.00 | 0.00 | 0.00 | 73.11 | 0.00 | 0.00 | 0.00 | 1162.43 | 0.00 | 0.00 | 0.00 | 1162.43 |
| 20+00 | 2000.00 | 50.00 | 39.20 | 0.00 | 0.00 | 0.00 | 72.40 | 0.00 | 0.00 | 0.00 | 1234.82 | 0.00 | 0.00 | 0.00 | 1234.82 |
| 20+50 | 2050.00 | 50.00 | 38.76 | 0.00 | 0.00 | 0.00 | 72.19 | 0.00 | 0.00 | 0.00 | 1307.01 | 0.00 | 0.00 | 0.00 | 1307.01 |
| 21+00 | 2100.00 | 50.00 | 38.90 | 0.00 | 0.00 | 0.00 | 71.91 | 0.00 | 0.00 | 0.00 | 1378.92 | 0.00 | 0.00 | 0.00 | 1378.92 |
| 21+50 | 2150.00 | 50.00 | 39.66 | 0.00 | 0.00 | 0.00 | 72.74 | 0.00 | 0.00 | 0.00 | 1451.66 | 0.00 | 0.00 | 0.00 | 1451.66 |
| 22+00 | 2200.00 | 50.00 | 40.99 | 0.00 | 0.00 | 0.00 | 74.68 | 0.00 | 0.00 | 0.00 | 1526.33 | 0.00 | 0.00 | 0.00 | 1526.33 |
| 22+50 | 2250.00 | 50.00 | 40.24 | 0.00 | 0.00 | 0.00 | 75.21 | 0.00 | 0.00 | 0.00 | 1601.55 | 0.00 | 0.00 | 0.00 | 1601.55 |
| 23+00 | 2300.00 | 50.00 | 39.61 | 0.00 | 0.00 | 0.00 | 73.94 | 0.00 | 0.00 | 0.00 | 1675.48 | 0.00 | 0.00 | 0.00 | 1675.48 |
| 23+50 | 2350.00 | 50.00 | 40.13 | 0.00 | 0.00 | 0.00 | 73.83 | 0.00 | 0.00 | 0.00 | 1749.32 | 0.00 | 0.00 | 0.00 | 1749.32 |
| 23+90 BK | 2390.17 | 40.17 | 21.37 | 0.00 | 0.00 | 0.00 | 45.75 | 0.00 | 0.00 | 0.00 | 1795.06 | 0.00 | 0.00 | 0.00 | 1795.06 |
| | | | | | Column totals | | 1795.06 | 0.00 | 0.00 | 0.00 | | | | | |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4626
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

**Division 2 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 190+31 AH | 19030.96 | 0.00 | 20.30 | 0.00 | 6.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 190+50 | 19050.00 | 19.04 | 19.79 | 0.00 | 0.00 | 0.00 | 14.14 | 0.00 | 2.23 | 0.00 | 14.14 | 2.46 | 0.00 | 0.00 | 11.68 |
| 191+00 | 19100.00 | 50.00 | 22.54 | 0.00 | 0.41 | 0.00 | 39.19 | 0.00 | 0.38 | 0.00 | 53.33 | 2.87 | 0.00 | 0.00 | 50.46 |
| 191+50 | 19150.00 | 50.00 | 27.04 | 0.00 | 10.18 | 0.00 | 45.91 | 0.00 | 9.81 | 0.00 | 99.24 | 13.66 | 0.00 | 0.00 | 85.58 |
| 191+50 | 19150.00 | 0.00 | 73.89 | 0.00 | 10.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 99.24 | 13.66 | 0.00 | 0.00 | 85.58 |
| 192+00 | 19200.00 | 50.00 | 79.05 | 0.00 | 4.19 | 0.00 | 141.61 | 0.00 | 13.83 | 0.00 | 240.85 | 28.88 | 0.00 | 0.00 | 211.97 |
| 192+50 | 19250.00 | 50.00 | 76.80 | 0.00 | 12.59 | 0.00 | 144.31 | 0.00 | 15.54 | 0.00 | 385.15 | 45.97 | 0.00 | 0.00 | 339.19 |
| 193+00 | 19300.00 | 50.00 | 72.18 | 0.00 | 7.49 | 0.00 | 137.94 | 0.00 | 18.59 | 0.00 | 523.10 | 66.42 | 0.00 | 0.00 | 456.68 |
| 193+50 | 19350.00 | 50.00 | 72.08 | 0.00 | 1.11 | 0.00 | 133.57 | 0.00 | 7.96 | 0.00 | 656.67 | 75.18 | 0.00 | 0.00 | 581.50 |
| 194+00 | 19400.00 | 50.00 | 69.51 | 0.00 | 0.45 | 0.00 | 131.10 | 0.00 | 1.44 | 0.00 | 787.77 | 76.77 | 0.00 | 0.00 | 711.01 |
| 194+50 | 19450.00 | 50.00 | 66.05 | 0.00 | 0.50 | 0.00 | 125.52 | 0.00 | 0.88 | 0.00 | 913.29 | 77.73 | 0.00 | 0.00 | 835.56 |
| 195+00 | 19500.00 | 50.00 | 63.69 | 0.00 | 0.37 | 0.00 | 120.13 | 0.00 | 0.81 | 0.00 | 1033.42 | 78.62 | 0.00 | 0.00 | 954.80 |
| 195+50 | 19550.00 | 50.00 | 63.64 | 0.00 | 0.04 | 0.00 | 117.90 | 0.00 | 0.38 | 0.00 | 1151.32 | 79.04 | 0.00 | 0.00 | 1072.28 |
| 196+00 | 19600.00 | 50.00 | 60.78 | 0.00 | 0.00 | 0.00 | 115.20 | 0.00 | 0.04 | 0.00 | 1266.52 | 79.08 | 0.00 | 0.00 | 1187.45 |
| 196+50 | 19650.00 | 50.00 | 62.26 | 0.00 | 0.00 | 0.00 | 113.93 | 0.00 | 0.00 | 0.00 | 1380.45 | 79.08 | 0.00 | 0.00 | 1301.37 |
| 197+00 | 19700.00 | 50.00 | 59.71 | 0.00 | 0.00 | 0.00 | 112.94 | 0.00 | 0.00 | 0.00 | 1493.39 | 79.08 | 0.00 | 0.00 | 1414.31 |
| 197+50 | 19750.00 | 50.00 | 65.64 | 0.00 | 0.00 | 0.00 | 116.06 | 0.00 | 0.00 | 0.00 | 1609.45 | 79.08 | 0.00 | 0.00 | 1530.37 |
| 198+00 | 19800.00 | 50.00 | 87.29 | 0.00 | 0.00 | 0.00 | 141.60 | 0.00 | 0.00 | 0.00 | 1751.05 | 79.08 | 0.00 | 0.00 | 1671.97 |
| 198+50 | 19850.00 | 50.00 | 112.63 | 0.00 | 0.00 | 0.00 | 185.11 | 0.00 | 0.00 | 0.00 | 1936.16 | 79.08 | 0.00 | 0.00 | 1857.08 |
| 199+00 | 19900.00 | 50.00 | 147.92 | 0.00 | 0.00 | 0.00 | 241.25 | 0.00 | 0.00 | 0.00 | 2177.41 | 79.08 | 0.00 | 0.00 | 2098.33 |
| 199+50 | 19950.00 | 50.00 | 186.50 | 0.00 | 0.00 | 0.00 | 309.65 | 0.00 | 0.00 | 0.00 | 2487.06 | 79.08 | 0.00 | 0.00 | 2407.98 |
| 200+00 | 20000.00 | 50.00 | 227.55 | 0.00 | 0.00 | 0.00 | 383.38 | 0.00 | 0.00 | 0.00 | 2870.44 | 79.08 | 0.00 | 0.00 | 2791.36 |
| 200+50 | 20050.00 | 50.00 | 236.71 | 0.00 | 0.00 | 0.00 | 429.87 | 0.00 | 0.00 | 0.00 | 3300.31 | 79.08 | 0.00 | 0.00 | 3221.23 |
| 201+00 | 20100.00 | 50.00 | 268.23 | 0.00 | 0.00 | 0.00 | 467.54 | 0.00 | 0.00 | 0.00 | 3767.85 | 79.08 | 0.00 | 0.00 | 3688.77 |
| 201+50 | 20150.00 | 50.00 | 239.84 | 0.00 | 0.15 | 0.00 | 470.44 | 0.00 | 0.14 | 0.00 | 4238.28 | 79.23 | 0.00 | 0.00 | 4159.05 |
| 202+00 | 20200.00 | 50.00 | 133.20 | 0.00 | 0.00 | 0.00 | 345.41 | 0.00 | 0.14 | 0.00 | 4583.69 | 79.38 | 0.00 | 0.00 | 4504.31 |
| 202+50 | 20250.00 | 50.00 | 37.91 | 0.00 | 0.00 | 0.00 | 158.44 | 0.00 | 0.00 | 0.00 | 4742.13 | 79.38 | 0.00 | 0.00 | 4662.74 |
| 203+00 | 20300.00 | 50.00 | 37.20 | 0.00 | 0.00 | 0.00 | 69.55 | 0.00 | 0.00 | 0.00 | 4811.67 | 79.38 | 0.00 | 0.00 | 4732.29 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4627
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 2 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 203+50 | 20350.00 | 50.00 | 209.61 | 0.00 | 0.00 | 0.00 | 228.53 | 0.00 | 0.00 | 0.00 | 5040.20 | 79.38 | 0.00 | 0.00 | 4960.82 |
| 204+00 | 20400.00 | 50.00 | 218.74 | 0.00 | 0.09 | 0.00 | 396.62 | 0.00 | 0.08 | 0.00 | 5436.82 | 79.48 | 0.00 | 0.00 | 5357.35 |
| 204+50 | 20450.00 | 50.00 | 89.06 | 0.00 | 0.38 | 0.00 | 285.00 | 0.00 | 0.44 | 0.00 | 5721.82 | 79.95 | 0.00 | 0.00 | 5641.87 |
| 205+00 | 20500.00 | 50.00 | 76.52 | 0.00 | 0.02 | 0.00 | 153.31 | 0.00 | 0.37 | 0.00 | 5875.14 | 80.36 | 0.00 | 0.00 | 5794.77 |
| 205+50 | 20550.00 | 50.00 | 76.47 | 0.00 | 0.30 | 0.00 | 141.66 | 0.00 | 0.30 | 0.00 | 6016.79 | 80.69 | 0.00 | 0.00 | 5936.11 |
| 206+00 | 20600.00 | 50.00 | 80.47 | 0.00 | 2.21 | 0.00 | 145.31 | 0.00 | 2.32 | 0.00 | 6162.11 | 83.24 | 0.00 | 0.00 | 6078.86 |
| 206+00 | 20600.00 | 0.00 | 117.38 | 0.00 | 2.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6162.11 | 83.24 | 0.00 | 0.00 | 6078.86 |
| 206+50 | 20650.00 | 50.00 | 121.08 | 0.00 | 4.93 | 0.00 | 220.80 | 0.00 | 6.76 | 0.00 | 6382.90 | 90.68 | 0.00 | 0.00 | 6292.22 |
| 207+00 | 20700.00 | 50.00 | 118.97 | 0.00 | 3.98 | 0.00 | 222.27 | 0.00 | 8.25 | 0.00 | 6605.17 | 99.75 | 0.00 | 0.00 | 6505.42 |
| 207+50 | 20750.00 | 50.00 | 120.88 | 0.00 | 5.35 | 0.00 | 222.08 | 0.00 | 8.64 | 0.00 | 6827.26 | 109.26 | 0.00 | 0.00 | 6718.00 |
| 208+00 | 20800.00 | 50.00 | 123.69 | 0.00 | 5.60 | 0.00 | 226.45 | 0.00 | 10.14 | 0.00 | 7053.71 | 120.41 | 0.00 | 0.00 | 6933.30 |
| 208+50 | 20850.00 | 50.00 | 123.05 | 0.00 | 18.01 | 0.00 | 228.46 | 0.00 | 21.86 | 0.00 | 7282.17 | 144.46 | 0.00 | 0.00 | 7137.72 |
| 209+00 | 20900.00 | 50.00 | 116.57 | 0.00 | 1.27 | 0.00 | 221.87 | 0.00 | 17.85 | 0.00 | 7504.04 | 164.09 | 0.00 | 0.00 | 7339.95 |
| 209+50 | 20950.00 | 50.00 | 113.48 | 0.00 | 0.66 | 0.00 | 213.01 | 0.00 | 1.79 | 0.00 | 7717.05 | 166.06 | 0.00 | 0.00 | 7550.99 |
| 210+00 | 21000.00 | 50.00 | 141.98 | 0.00 | 0.00 | 0.00 | 236.54 | 0.00 | 0.61 | 0.00 | 7953.59 | 166.73 | 0.00 | 0.00 | 7786.86 |
| 210+50 | 21050.00 | 50.00 | 179.47 | 0.00 | 0.00 | 0.00 | 297.64 | 0.00 | 0.00 | 0.00 | 8251.23 | 166.73 | 0.00 | 0.00 | 8084.50 |
| 211+00 | 21100.00 | 50.00 | 182.27 | 0.00 | 0.00 | 0.00 | 334.94 | 0.00 | 0.00 | 0.00 | 8586.17 | 166.73 | 0.00 | 0.00 | 8419.44 |
| 211+50 | 21150.00 | 50.00 | 155.82 | 0.00 | 0.00 | 0.00 | 313.05 | 0.00 | 0.00 | 0.00 | 8899.22 | 166.73 | 0.00 | 0.00 | 8732.49 |
| 212+00 | 21200.00 | 50.00 | 139.36 | 0.00 | 0.00 | 0.00 | 273.31 | 0.00 | 0.00 | 0.00 | 9172.53 | 166.73 | 0.00 | 0.00 | 9005.80 |
| 212+50 | 21250.00 | 50.00 | 131.32 | 0.00 | 0.00 | 0.00 | 250.63 | 0.00 | 0.00 | 0.00 | 9423.16 | 166.73 | 0.00 | 0.00 | 9256.43 |
| 213+00 | 21300.00 | 50.00 | 125.20 | 0.00 | 0.00 | 0.00 | 237.52 | 0.00 | 0.00 | 0.00 | 9660.68 | 166.73 | 0.00 | 0.00 | 9493.95 |
| 213+50 | 21350.00 | 50.00 | 116.18 | 0.00 | 0.00 | 0.00 | 223.50 | 0.00 | 0.00 | 0.00 | 9884.18 | 166.73 | 0.00 | 0.00 | 9717.45 |
| 214+00 | 21400.00 | 50.00 | 100.47 | 0.00 | 0.00 | 0.00 | 200.60 | 0.00 | 0.00 | 0.00 | 10084.78 | 166.73 | 0.00 | 0.00 | 9918.05 |
| 214+44 | 21444.00 | 44.00 | 85.00 | 0.00 | 0.01 | 0.00 | 151.12 | 0.00 | 0.01 | 0.00 | 10235.91 | 166.74 | 0.00 | 0.00 | 10069.17 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4628
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:27 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew3 PLOT SCALE : 1:1

(CONTINUED)

**Division 2 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) | | | | Incremental Vol (CY) (Unadjusted) | | | | Cumulative Vol (CY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Expanded Fill | Expanded EBS Backfill | Reduced EBS In Fill | Mass Ordinate |
| | | | | | | | | | | | 1.0 | 1.1 | 1.3 | 0.8 | |
| | | | | | | | Note 1 | Note 2 | Note 3 | | | | Note 4 | Note 5 | Note 6 |
| 214+44 | 21444.00 | 0.00 | 47.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10235.91 | 166.74 | 0.00 | 0.00 | 10069.17 |
| 214+50 | 21450.00 | 6.00 | 46.61 | 0.00 | 0.00 | 0.00 | 10.48 | 0.00 | 0.00 | 0.00 | 10246.39 | 166.74 | 0.00 | 0.00 | 10079.65 |
| 215+00 | 21500.00 | 50.00 | 36.82 | 0.00 | 0.00 | 0.00 | 77.25 | 0.00 | 0.00 | 0.00 | 10323.64 | 166.74 | 0.00 | 0.00 | 10156.90 |
| 215+50 | 21550.00 | 50.00 | 29.55 | 0.00 | 0.00 | 0.00 | 61.45 | 0.00 | 0.00 | 0.00 | 10385.09 | 166.74 | 0.00 | 0.00 | 10218.35 |
| 216+00 | 21600.00 | 50.00 | 22.60 | 0.00 | 0.00 | 0.00 | 48.29 | 0.00 | 0.00 | 0.00 | 10433.38 | 166.74 | 0.00 | 0.00 | 10266.64 |
| 216+50 | 21650.00 | 50.00 | 15.35 | 0.00 | 0.00 | 0.00 | 35.14 | 0.00 | 0.00 | 0.00 | 10468.52 | 166.74 | 0.00 | 0.00 | 10301.78 |
| 217+00 | 21700.00 | 50.00 | 5.76 | 0.00 | 0.00 | 0.00 | 19.55 | 0.00 | 0.00 | 0.00 | 10488.07 | 166.74 | 0.00 | 0.00 | 10321.32 |
| 217+50 | 21750.00 | 50.00 | 0.00 | 0.00 | 6.03 | 0.00 | 5.33 | 0.00 | 5.58 | 0.00 | 10493.40 | 172.88 | 0.00 | 0.00 | 10320.52 |
| 217+90 | 21790.00 | 40.00 | 0.00 | 0.00 | 17.23 | 0.00 | 0.00 | 0.00 | 17.23 | 0.00 | 10493.40 | 191.84 | 0.00 | 0.00 | 10301.56 |
| 217+90 | 21790.00 | 0.00 | 0.00 | 0.00 | 88.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10493.40 | 191.84 | 0.00 | 0.00 | 10301.56 |
| 218+00 | 21800.00 | 10.00 | 0.00 | 0.00 | 96.53 | 0.00 | 0.00 | 0.00 | 34.23 | 0.00 | 10493.40 | 229.49 | 0.00 | 0.00 | 10263.91 |
| 218+50 | 21850.00 | 50.00 | 0.00 | 0.00 | 171.44 | 0.00 | 0.00 | 0.00 | 248.12 | 0.00 | 10493.40 | 502.42 | 0.00 | 0.00 | 9990.98 |
| 219+00 | 21900.00 | 50.00 | 0.00 | 0.00 | 259.10 | 0.00 | 0.00 | 0.00 | 398.65 | 0.00 | 10493.40 | 940.93 | 0.00 | 0.00 | 9552.47 |
| 219+00 | 21900.00 | 0.00 | 0.00 | 0.00 | 232.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10493.40 | 940.93 | 0.00 | 0.00 | 9552.47 |
| 219+50 | 21950.00 | 50.00 | 0.00 | 0.00 | 311.68 | 0.00 | 0.00 | 0.00 | 504.13 | 0.00 | 10493.40 | 1495.47 | 0.00 | 0.00 | 8997.93 |
| 220+00 | 22000.00 | 50.00 | 0.00 | 0.00 | 384.09 | 0.00 | 0.00 | 0.00 | 644.23 | 0.00 | 10493.40 | 2204.13 | 0.00 | 0.00 | 8289.27 |
| 220+50 | 22050.00 | 50.00 | 0.00 | 0.00 | 456.77 | 0.00 | 0.00 | 0.00 | 778.57 | 0.00 | 10493.40 | 3060.56 | 0.00 | 0.00 | 7432.84 |
| 221+00 | 22100.00 | 50.00 | 0.00 | 0.00 | 510.05 | 0.00 | 0.00 | 0.00 | 895.20 | 0.00 | 10493.40 | 4045.28 | 0.00 | 0.00 | 6448.11 |
| 221+50 | 22150.00 | 50.00 | 0.00 | 0.00 | 558.49 | 0.00 | 0.00 | 0.00 | 989.39 | 0.00 | 10493.40 | 5133.61 | 0.00 | 0.00 | 5359.79 |
| 222+00 | 22200.00 | 50.00 | 0.00 | 0.00 | 604.54 | 0.00 | 0.00 | 0.00 | 1076.88 | 0.00 | 10493.40 | 6318.18 | 0.00 | 0.00 | 4175.22 |
| 222+50 | 22250.00 | 50.00 | 0.00 | 0.00 | 615.31 | 0.00 | 0.00 | 0.00 | 1129.49 | 0.00 | 10493.40 | 7560.62 | 0.00 | 0.00 | 2932.78 |
| 223+00 | 22300.00 | 50.00 | 0.00 | 0.00 | 613.84 | 0.00 | 0.00 | 0.00 | 1138.10 | 0.00 | 10493.40 | 8812.53 | 0.00 | 0.00 | 1680.87 |
| 223+50 | 22350.00 | 50.00 | 0.00 | 0.00 | 648.79 | 0.00 | 0.00 | 0.00 | 1169.10 | 0.00 | 10493.40 | 10098.54 | 0.00 | 0.00 | 394.86 |
| 224+00 | 22400.00 | 50.00 | 0.00 | 0.00 | 651.02 | 0.00 | 0.00 | 0.00 | 1203.53 | 0.00 | 10493.40 | 11422.42 | 0.00 | 0.00 | -929.02 |
| 224+50 | 22450.00 | 50.00 | 0.00 | 0.00 | 624.76 | 0.00 | 0.00 | 0.00 | 1181.28 | 0.00 | 10493.40 | 12721.83 | 0.00 | 0.00 | -2228.43 |
| 225+00 | 22500.00 | 50.00 | 0.00 | 0.00 | 592.04 | 0.00 | 0.00 | 0.00 | 1126.67 | 0.00 | 10493.40 | 13961.16 | 0.00 | 0.00 | -3467.76 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4629
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 2 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 225+50 | 22550.00 | 50.00 | 0.00 | 0.00 | 550.43 | 0.00 | 0.00 | 0.00 | 1057.84 | 0.00 | 10493.40 | 15124.79 | 0.00 | 0.00 | -4631.39 |
| 226+00 | 22600.00 | 50.00 | 0.00 | 0.00 | 574.10 | 0.00 | 0.00 | 0.00 | 1041.23 | 0.00 | 10493.40 | 16270.14 | 0.00 | 0.00 | -5776.75 |
| 226+50 | 22650.00 | 50.00 | 0.00 | 0.00 | 520.42 | 0.00 | 0.00 | 0.00 | 1013.44 | 0.00 | 10493.40 | 17384.93 | 0.00 | 0.00 | -6891.53 |
| 227+00 | 22700.00 | 50.00 | 0.00 | 0.00 | 455.42 | 0.00 | 0.00 | 0.00 | 903.56 | 0.00 | 10493.40 | 18378.84 | 0.00 | 0.00 | -7885.45 |
| 227+50 | 22750.00 | 50.00 | 0.00 | 0.00 | 419.69 | 0.00 | 0.00 | 0.00 | 810.29 | 0.00 | 10493.40 | 19270.16 | 0.00 | 0.00 | -8776.76 |
| 228+00 | 22800.00 | 50.00 | 0.00 | 0.00 | 448.69 | 0.00 | 0.00 | 0.00 | 804.06 | 0.00 | 10493.40 | 20154.62 | 0.00 | 0.00 | -9661.22 |
| 228+50 | 22850.00 | 50.00 | 11.74 | 0.00 | 296.85 | 0.00 | 10.87 | 0.00 | 690.31 | 0.00 | 10504.27 | 20913.97 | 0.00 | 0.00 | -10409.70 |
| 228+77 | 22876.97 | 26.97 | 25.04 | 0.00 | 400.24 | 0.00 | 18.37 | 0.00 | 348.16 | 0.00 | 10522.64 | 21296.94 | 0.00 | 0.00 | -10774.30 |
| 228+89 BK | 22889.28 | 12.31 | 0.00 | 0.00 | 0.00 | 0.00 | 5.71 | 0.00 | 91.24 | 0.00 | 10528.35 | 21397.30 | 0.00 | 0.00 | -10868.96 |
| 230+77 AH | 23077.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 230+88 | 23088.21 | 10.78 | 160.99 | 0.00 | 0.00 | 0.00 | 32.14 | 0.00 | 0.00 | 0.00 | 32.14 | 0.00 | 0.00 | 0.00 | 32.14 |
| 231+00 | 23100.00 | 11.79 | 265.33 | 0.00 | 1.02 | 0.00 | 93.08 | 0.00 | 0.22 | 0.00 | 125.22 | 0.24 | 0.00 | 0.00 | 124.97 |
| 231+50 | 23150.00 | 50.00 | 184.14 | 0.00 | 214.24 | 0.00 | 416.18 | 0.00 | 199.31 | 0.00 | 541.39 | 219.49 | 0.00 | 0.00 | 321.90 |
| 232+00 | 23200.00 | 50.00 | 0.17 | 0.00 | 126.20 | 0.00 | 170.66 | 0.00 | 315.22 | 0.00 | 712.05 | 566.24 | 0.00 | 0.00 | 145.82 |
| 232+50 | 23250.00 | 50.00 | 0.00 | 0.00 | 536.79 | 0.00 | 0.16 | 0.00 | 613.88 | 0.00 | 712.21 | 1241.50 | 0.00 | 0.00 | -529.29 |
| 233+00 | 23300.00 | 50.00 | 0.00 | 0.00 | 549.93 | 0.00 | 0.00 | 0.00 | 1006.22 | 0.00 | 712.21 | 2348.35 | 0.00 | 0.00 | -1636.14 |
| 233+50 | 23350.00 | 50.00 | 0.00 | 0.00 | 478.34 | 0.00 | 0.00 | 0.00 | 952.10 | 0.00 | 712.21 | 3395.66 | 0.00 | 0.00 | -2683.45 |
| 234+00 | 23400.00 | 50.00 | 0.00 | 0.00 | 414.00 | 0.00 | 0.00 | 0.00 | 826.24 | 0.00 | 712.21 | 4304.52 | 0.00 | 0.00 | -3592.32 |
| 234+50 | 23450.00 | 50.00 | 0.00 | 0.00 | 357.19 | 0.00 | 0.00 | 0.00 | 714.06 | 0.00 | 712.21 | 5090.00 | 0.00 | 0.00 | -4377.79 |
| 235+00 | 23500.00 | 50.00 | 0.00 | 0.00 | 339.99 | 0.00 | 0.00 | 0.00 | 645.54 | 0.00 | 712.21 | 5800.09 | 0.00 | 0.00 | -5087.88 |
| 235+50 | 23550.00 | 50.00 | 0.00 | 0.00 | 336.40 | 0.00 | 0.00 | 0.00 | 626.29 | 0.00 | 712.21 | 6489.00 | 0.00 | 0.00 | -5776.79 |
| 236+00 | 23600.00 | 50.00 | 0.00 | 0.00 | 320.67 | 0.00 | 0.00 | 0.00 | 608.40 | 0.00 | 712.21 | 7158.24 | 0.00 | 0.00 | -6446.03 |
| 236+50 | 23650.00 | 50.00 | 0.00 | 0.00 | 319.56 | 0.00 | 0.00 | 0.00 | 592.81 | 0.00 | 712.21 | 7810.33 | 0.00 | 0.00 | -7098.12 |
| 237+00 | 23700.00 | 50.00 | 0.00 | 0.00 | 312.73 | 0.00 | 0.00 | 0.00 | 585.45 | 0.00 | 712.21 | 8454.33 | 0.00 | 0.00 | -7742.12 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4630
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 2 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 237+50 | 23750.00 | 50.00 | 0.04 | 0.00 | 278.64 | 0.00 | 0.04 | 0.00 | 547.56 | 0.00 | 712.25 | 9056.65 | 0.00 | 0.00 | -8344.40 |
| 238+00 | 23800.00 | 50.00 | 0.28 | 0.00 | 235.00 | 0.00 | 0.30 | 0.00 | 475.59 | 0.00 | 712.54 | 9579.80 | 0.00 | 0.00 | -8867.26 |
| 238+50 | 23850.00 | 50.00 | 2.64 | 0.00 | 162.87 | 0.00 | 2.70 | 0.00 | 368.40 | 0.00 | 715.25 | 9985.04 | 0.00 | 0.00 | -9269.79 |
| 239+00 | 23900.00 | 50.00 | 14.42 | 0.00 | 95.39 | 0.00 | 15.80 | 0.00 | 239.13 | 0.00 | 731.04 | 10248.08 | 0.00 | 0.00 | -9517.04 |
| 239+00 | 23900.00 | 0.00 | 14.59 | 0.00 | 136.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 731.04 | 10248.08 | 0.00 | 0.00 | -9517.04 |
| 239+50 | 23950.00 | 50.00 | 30.85 | 0.00 | 101.47 | 0.00 | 42.07 | 0.00 | 219.97 | 0.00 | 773.12 | 10490.05 | 0.00 | 0.00 | -9716.93 |
| 240+00 | 24000.00 | 50.00 | 83.42 | 0.00 | 67.01 | 0.00 | 105.81 | 0.00 | 156.00 | 0.00 | 878.92 | 10661.65 | 0.00 | 0.00 | -9782.73 |
| 240+29 | 24029.00 | 29.00 | 144.74 | 0.00 | 59.67 | 0.00 | 122.53 | 0.00 | 68.03 | 0.00 | 1001.45 | 10736.48 | 0.00 | 0.00 | -9735.03 |
| 240+29 | 24029.00 | 0.00 | 4.02 | 0.00 | 59.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1001.45 | 10736.48 | 0.00 | 0.00 | -9735.03 |
| 240+50 | 24050.00 | 21.00 | 6.12 | 0.00 | 57.06 | 0.00 | 3.94 | 0.00 | 45.15 | 0.00 | 1005.40 | 10786.15 | 0.00 | 0.00 | -9780.76 |
| 241+00 | 24100.00 | 50.00 | 10.25 | 0.00 | 57.89 | 0.00 | 15.16 | 0.00 | 106.44 | 0.00 | 1020.55 | 10903.23 | 0.00 | 0.00 | -9882.68 |
| 241+50 | 24150.00 | 50.00 | 16.12 | 0.00 | 36.01 | 0.00 | 24.42 | 0.00 | 86.94 | 0.00 | 1044.97 | 10998.87 | 0.00 | 0.00 | -9953.90 |
| 242+00 | 24200.00 | 50.00 | 23.22 | 0.00 | 23.62 | 0.00 | 36.43 | 0.00 | 55.21 | 0.00 | 1081.40 | 11059.60 | 0.00 | 0.00 | -9978.21 |
| 242+27 | 24227.00 | 27.00 | 13.27 | 0.00 | 22.34 | 0.00 | 18.25 | 0.00 | 22.98 | 0.00 | 1099.64 | 11084.88 | 0.00 | 0.00 | -9985.24 |
| 242+27 | 24227.00 | 0.00 | 93.91 | 0.00 | 22.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1099.64 | 11084.88 | 0.00 | 0.00 | -9985.24 |
| 242+50 | 24250.00 | 23.00 | 80.33 | 0.00 | 24.17 | 0.00 | 74.21 | 0.00 | 19.83 | 0.00 | 1173.85 | 11106.70 | 0.00 | 0.00 | -9932.84 |
| 243+00 | 24300.00 | 50.00 | 19.85 | 0.00 | 11.28 | 0.00 | 92.76 | 0.00 | 32.82 | 0.00 | 1266.61 | 11142.80 | 0.00 | 0.00 | -9876.19 |
| 243+50 | 24350.00 | 50.00 | 24.29 | 0.00 | 70.88 | 0.00 | 40.87 | 0.00 | 76.07 | 0.00 | 1307.48 | 11226.49 | 0.00 | 0.00 | -9919.00 |
| 244+00 | 24400.00 | 50.00 | 32.97 | 0.00 | 62.37 | 0.00 | 53.02 | 0.00 | 123.38 | 0.00 | 1360.50 | 11362.20 | 0.00 | 0.00 | -10001.70 |
| 244+50 | 24450.00 | 50.00 | 52.09 | 0.00 | 31.96 | 0.00 | 78.76 | 0.00 | 87.34 | 0.00 | 1439.26 | 11458.28 | 0.00 | 0.00 | -10019.02 |
| 245+00 | 24500.00 | 50.00 | 96.19 | 0.00 | 6.22 | 0.00 | 137.30 | 0.00 | 35.35 | 0.00 | 1576.56 | 11497.17 | 0.00 | 0.00 | -9920.61 |
| 245+50 | 24550.00 | 50.00 | 132.89 | 0.00 | 6.67 | 0.00 | 212.11 | 0.00 | 11.94 | 0.00 | 1788.67 | 11510.30 | 0.00 | 0.00 | -9721.63 |
| 246+00 | 24600.00 | 50.00 | 111.69 | 0.00 | 99.36 | 0.00 | 226.46 | 0.00 | 98.18 | 0.00 | 2015.13 | 11618.29 | 0.00 | 0.00 | -9603.16 |
| 246+50 | 24650.00 | 50.00 | 101.97 | 0.00 | 120.16 | 0.00 | 197.83 | 0.00 | 203.26 | 0.00 | 2212.97 | 11841.87 | 0.00 | 0.00 | -9628.91 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4631
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:27 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew6 PLOT SCALE : 1:1

(CONTINUED)

**Division 2 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 247+00 | 24700.00 | 50.00 | 461.17 | 0.00 | 4.79 | 0.00 | 521.43 | 0.00 | 115.69 | 0.00 | 2734.39 | 11969.14 | 0.00 | 0.00 | -9234.75 |
| 247+50 | 24750.00 | 50.00 | 1987.60 | 0.00 | 0.00 | 0.00 | 2267.38 | 0.00 | 4.44 | 0.00 | 5001.77 | 11974.02 | 0.00 | 0.00 | -6972.25 |
| 248+00 | 24800.00 | 50.00 | 765.91 | 0.00 | 21.67 | 0.00 | 2549.55 | 0.00 | 20.06 | 0.00 | 7551.32 | 11996.09 | 0.00 | 0.00 | -4444.77 |
| 248+50 | 24850.00 | 50.00 | 309.67 | 0.00 | 185.56 | 0.00 | 995.91 | 0.00 | 191.88 | 0.00 | 8547.22 | 12207.16 | 0.00 | 0.00 | -3659.93 |
| 249+00 | 24900.00 | 50.00 | 295.90 | 0.00 | 167.87 | 0.00 | 560.71 | 0.00 | 327.25 | 0.00 | 9107.94 | 12567.13 | 0.00 | 0.00 | -3459.19 |
| 249+50 | 24950.00 | 50.00 | 307.75 | 0.00 | 131.64 | 0.00 | 558.94 | 0.00 | 277.32 | 0.00 | 9666.87 | 12872.19 | 0.00 | 0.00 | -3205.31 |
| 250+00 | 25000.00 | 50.00 | 313.50 | 0.00 | 165.50 | 0.00 | 575.23 | 0.00 | 275.13 | 0.00 | 10242.10 | 13174.83 | 0.00 | 0.00 | -2932.73 |
| 250+50 | 25050.00 | 50.00 | 327.43 | 0.00 | 75.68 | 0.00 | 593.45 | 0.00 | 223.31 | 0.00 | 10835.56 | 13420.48 | 0.00 | 0.00 | -2584.92 |
| 251+00 | 25100.00 | 50.00 | 363.04 | 0.00 | 74.19 | 0.00 | 639.32 | 0.00 | 138.77 | 0.00 | 11474.88 | 13573.12 | 0.00 | 0.00 | -2098.24 |
| 251+50 | 25150.00 | 50.00 | 1199.05 | 0.00 | 45.45 | 0.00 | 1446.38 | 0.00 | 110.78 | 0.00 | 12921.26 | 13694.98 | 0.00 | 0.00 | -773.72 |
| 251+50 | 25150.00 | 0.00 | 1156.11 | 0.00 | 43.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 12921.26 | 13694.98 | 0.00 | 0.00 | -773.72 |
| 252+00 | 25200.00 | 50.00 | 1378.91 | 0.00 | 241.10 | 0.00 | 2347.24 | 0.00 | 263.94 | 0.00 | 15268.50 | 13985.31 | 0.00 | 0.00 | 1283.20 |
| 252+50 | 25250.00 | 50.00 | 353.74 | 0.00 | 0.00 | 0.00 | 1604.31 | 0.00 | 223.24 | 0.00 | 16872.81 | 14230.87 | 0.00 | 0.00 | 2641.94 |
| 253+00 | 25300.00 | 50.00 | 233.13 | 0.00 | 0.00 | 0.00 | 543.40 | 0.00 | 0.00 | 0.00 | 17416.21 | 14230.87 | 0.00 | 0.00 | 3185.34 |
| 253+50 | 25350.00 | 50.00 | 229.00 | 0.00 | 0.00 | 0.00 | 427.90 | 0.00 | 0.00 | 0.00 | 17844.10 | 14230.87 | 0.00 | 0.00 | 3613.23 |
| 254+00 | 25400.00 | 50.00 | 224.77 | 0.00 | 0.00 | 0.00 | 420.16 | 0.00 | 0.00 | 0.00 | 18264.26 | 14230.87 | 0.00 | 0.00 | 4033.39 |
| 254+50 | 25450.00 | 50.00 | 182.06 | 0.00 | 367.81 | 0.00 | 376.69 | 0.00 | 340.56 | 0.00 | 18640.96 | 14605.49 | 0.00 | 0.00 | 4035.46 |
| 255+00 | 25500.00 | 50.00 | 403.59 | 0.00 | 0.00 | 0.00 | 542.27 | 0.00 | 340.56 | 0.00 | 19183.22 | 14980.11 | 0.00 | 0.00 | 4203.11 |
| 255+50 | 25550.00 | 50.00 | 148.87 | 0.00 | 0.00 | 0.00 | 511.54 | 0.00 | 0.00 | 0.00 | 19694.76 | 14980.11 | 0.00 | 0.00 | 4714.65 |
| 255+50 | 25550.00 | 0.00 | 204.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 19694.76 | 14980.11 | 0.00 | 0.00 | 4714.65 |
| 256+00 | 25600.00 | 50.00 | 185.36 | 0.00 | 0.00 | 0.00 | 360.95 | 0.00 | 0.00 | 0.00 | 20055.72 | 14980.11 | 0.00 | 0.00 | 5075.60 |
| 256+50 | 25650.00 | 50.00 | 190.42 | 0.00 | 0.00 | 0.00 | 347.94 | 0.00 | 0.00 | 0.00 | 20403.66 | 14980.11 | 0.00 | 0.00 | 5423.55 |
| 257+00 | 25700.00 | 50.00 | 372.42 | 0.00 | 0.00 | 0.00 | 521.15 | 0.00 | 0.00 | 0.00 | 20924.81 | 14980.11 | 0.00 | 0.00 | 5944.69 |
| 257+50 | 25750.00 | 50.00 | 288.10 | 0.00 | 0.00 | 0.00 | 611.59 | 0.00 | 0.00 | 0.00 | 21536.40 | 14980.11 | 0.00 | 0.00 | 6556.29 |
| 258+00 | 25800.00 | 50.00 | 174.12 | 0.00 | 0.00 | 0.00 | 427.98 | 0.00 | 0.00 | 0.00 | 21964.38 | 14980.11 | 0.00 | 0.00 | 6984.27 |
| 258+50 | 25850.00 | 50.00 | 154.56 | 0.00 | 0.00 | 0.00 | 304.33 | 0.00 | 0.00 | 0.00 | 22268.72 | 14980.11 | 0.00 | 0.00 | 7288.60 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4632
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:27 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew7 PLOT SCALE : 1:1

(CONTINUED)

**Division 2 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 259+00 | 25900.00 | 50.00 | 140.87 | 0.00 | 0.00 | 0.00 | 273.55 | 0.00 | 0.00 | 0.00 | 22542.26 | 14980.11 | 0.00 | 0.00 | 7562.15 |
| 259+50 | 25950.00 | 50.00 | 124.12 | 0.00 | 0.00 | 0.00 | 245.36 | 0.00 | 0.00 | 0.00 | 22787.62 | 14980.11 | 0.00 | 0.00 | 7807.51 |
| 260+00 | 26000.00 | 50.00 | 136.88 | 0.00 | 0.00 | 0.00 | 241.67 | 0.00 | 0.00 | 0.00 | 23029.29 | 14980.11 | 0.00 | 0.00 | 8049.18 |
| 260+50 | 26050.00 | 50.00 | 154.43 | 0.00 | 0.00 | 0.00 | 269.73 | 0.00 | 0.00 | 0.00 | 23299.02 | 14980.11 | 0.00 | 0.00 | 8318.91 |
| 261+00 | 26100.00 | 50.00 | 127.22 | 0.00 | 0.00 | 0.00 | 260.79 | 0.00 | 0.00 | 0.00 | 23559.81 | 14980.11 | 0.00 | 0.00 | 8579.69 |
| 261+50 | 26150.00 | 50.00 | 79.69 | 0.00 | 4.21 | 0.00 | 191.58 | 0.00 | 3.90 | 0.00 | 23751.39 | 14984.40 | 0.00 | 0.00 | 8766.99 |
| 262+00 | 26200.00 | 50.00 | 39.51 | 0.00 | 3.97 | 0.00 | 110.37 | 0.00 | 7.57 | 0.00 | 23861.76 | 14992.73 | 0.00 | 0.00 | 8869.03 |
| 262+50 | 26250.00 | 50.00 | 35.43 | 0.00 | 15.07 | 0.00 | 69.39 | 0.00 | 17.63 | 0.00 | 23931.15 | 15012.12 | 0.00 | 0.00 | 8919.03 |
| 263+00 | 26300.00 | 50.00 | 23.26 | 0.00 | 28.35 | 0.00 | 54.34 | 0.00 | 40.20 | 0.00 | 23985.49 | 15056.35 | 0.00 | 0.00 | 8929.14 |
| 263+50 | 26350.00 | 50.00 | 11.17 | 0.00 | 64.67 | 0.00 | 31.88 | 0.00 | 86.13 | 0.00 | 24017.37 | 15151.09 | 0.00 | 0.00 | 8866.28 |
| 264+00 | 26400.00 | 50.00 | 6.96 | 0.00 | 93.59 | 0.00 | 16.79 | 0.00 | 146.54 | 0.00 | 24034.16 | 15312.28 | 0.00 | 0.00 | 8721.88 |
| 264+50 | 26450.00 | 50.00 | 8.67 | 0.00 | 65.90 | 0.00 | 14.47 | 0.00 | 147.68 | 0.00 | 24048.63 | 15474.73 | 0.00 | 0.00 | 8573.91 |
| 265+00 | 26500.00 | 50.00 | 14.87 | 0.00 | 49.04 | 0.00 | 21.80 | 0.00 | 106.43 | 0.00 | 24070.43 | 15591.79 | 0.00 | 0.00 | 8478.63 |
| 265+07 BK | 26506.57 | 6.57 | 15.58 | 0.00 | 47.30 | 0.00 | 3.70 | 0.00 | 11.72 | 0.00 | 24074.13 | 15604.69 | 0.00 | 0.00 | 8469.45 |
| | | | | | | Column totals | 34602.48 | 0.00 | 33638.17 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4633
September 14, 2015

9

9




FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:27 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew8 PLOT SCALE : 1:1

**Division 2 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 308+00 AH | 30800.00 | 0.00 | 114.74 | 0.00 | 0.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 308+50 | 30850.00 | 50.00 | 373.58 | 0.00 | 0.00 | 0.00 | 452.15 | 0.00 | 0.53 | 0.00 | 452.15 | 0.58 | 0.00 | 0.00 | 451.57 |
| 309+00 | 30900.00 | 50.00 | 554.73 | 0.00 | 0.00 | 0.00 | 859.55 | 0.00 | 0.00 | 0.00 | 1311.69 | 0.58 | 0.00 | 0.00 | 1311.11 |
| 309+00 | 30900.00 | 0.00 | 633.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1311.69 | 0.58 | 0.00 | 0.00 | 1311.11 |
| 309+50 | 30950.00 | 50.00 | 690.62 | 0.00 | 0.00 | 0.00 | 1226.06 | 0.00 | 0.00 | 0.00 | 2537.76 | 0.58 | 0.00 | 0.00 | 2537.18 |
| 310+00 | 31000.00 | 50.00 | 704.38 | 0.00 | 0.00 | 0.00 | 1291.67 | 0.00 | 0.00 | 0.00 | 3829.43 | 0.58 | 0.00 | 0.00 | 3828.85 |
| 310+34 | 31034.00 | 34.00 | 706.56 | 0.00 | 0.00 | 0.00 | 888.37 | 0.00 | 0.00 | 0.00 | 4717.80 | 0.58 | 0.00 | 0.00 | 4717.22 |
| 310+34 | 31034.00 | 0.00 | 475.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4717.80 | 0.58 | 0.00 | 0.00 | 4717.22 |
| 310+50 | 31050.00 | 16.00 | 482.74 | 0.00 | 0.00 | 0.00 | 283.84 | 0.00 | 0.00 | 0.00 | 5001.64 | 0.58 | 0.00 | 0.00 | 5001.06 |
| 311+00 | 31100.00 | 50.00 | 494.81 | 0.00 | 0.00 | 0.00 | 905.14 | 0.00 | 0.00 | 0.00 | 5906.78 | 0.58 | 0.00 | 0.00 | 5906.20 |
| 311+50 | 31150.00 | 50.00 | 485.77 | 0.00 | 0.00 | 0.00 | 907.94 | 0.00 | 0.00 | 0.00 | 6814.72 | 0.58 | 0.00 | 0.00 | 6814.14 |
| 311+69 | 31169.00 | 19.00 | 483.29 | 0.00 | 0.00 | 0.00 | 340.97 | 0.00 | 0.00 | 0.00 | 7155.69 | 0.58 | 0.00 | 0.00 | 7155.11 |
| 311+69 | 31169.00 | 0.00 | 575.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7155.69 | 0.58 | 0.00 | 0.00 | 7155.11 |
| 312+00 | 31200.00 | 31.00 | 567.78 | 0.00 | 0.00 | 0.00 | 656.19 | 0.00 | 0.00 | 0.00 | 7811.88 | 0.58 | 0.00 | 0.00 | 7811.30 |
| 312+00 | 31200.00 | 0.00 | 220.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7811.88 | 0.58 | 0.00 | 0.00 | 7811.30 |
| 312+50 | 31250.00 | 50.00 | 216.21 | 0.00 | 0.00 | 0.00 | 404.30 | 0.00 | 0.00 | 0.00 | 8216.17 | 0.58 | 0.00 | 0.00 | 8215.59 |
| 313+00 BK | 31300.00 | 50.00 | 211.94 | 0.00 | 0.00 | 0.00 | 396.44 | 0.00 | 0.00 | 0.00 | 8612.61 | 0.58 | 0.00 | 0.00 | 8612.03 |
| 327+00 AH | 32700.00 | 0.00 | 202.55 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 327+50 | 32750.00 | 50.00 | 207.78 | 0.00 | 0.00 | 0.00 | 379.94 | 0.00 | 0.00 | 0.00 | 379.94 | 0.00 | 0.00 | 0.00 | 379.94 |
| 328+00 | 32800.00 | 50.00 | 191.61 | 0.00 | 0.00 | 0.00 | 369.81 | 0.00 | 0.00 | 0.00 | 749.74 | 0.00 | 0.00 | 0.00 | 749.74 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4634
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:27 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew9 PLOT SCALE : 1:1

(CONTINUED)

**Division 2 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 328+00 | 32800.00 | 0.00 | 336.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 749.74 | 0.00 | 0.00 | 0.00 | 749.74 |
| 328+50 | 32850.00 | 50.00 | 310.70 | 0.00 | 0.00 | 0.00 | 599.19 | 0.00 | 0.00 | 0.00 | 1348.94 | 0.00 | 0.00 | 0.00 | 1348.94 |
| 329+00 | 32900.00 | 50.00 | 308.98 | 0.00 | 0.00 | 0.00 | 573.78 | 0.00 | 0.00 | 0.00 | 1922.71 | 0.00 | 0.00 | 0.00 | 1922.71 |
| 329+50 | 32950.00 | 50.00 | 314.55 | 0.00 | 0.00 | 0.00 | 577.34 | 0.00 | 0.00 | 0.00 | 2500.06 | 0.00 | 0.00 | 0.00 | 2500.06 |
| 330+00 | 33000.00 | 50.00 | 317.21 | 0.00 | 0.00 | 0.00 | 584.96 | 0.00 | 0.00 | 0.00 | 3085.02 | 0.00 | 0.00 | 0.00 | 3085.02 |
| 330+00 | 33000.00 | 0.00 | 561.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3085.02 | 0.00 | 0.00 | 0.00 | 3085.02 |
| 330+50 | 33050.00 | 50.00 | 563.87 | 0.00 | 0.00 | 0.00 | 1042.17 | 0.00 | 0.00 | 0.00 | 4127.19 | 0.00 | 0.00 | 0.00 | 4127.19 |
| 331+00 | 33100.00 | 50.00 | 563.83 | 0.00 | 0.00 | 0.00 | 1044.17 | 0.00 | 0.00 | 0.00 | 5171.35 | 0.00 | 0.00 | 0.00 | 5171.35 |
| 331+50 | 33150.00 | 50.00 | 555.36 | 0.00 | 0.00 | 0.00 | 1036.29 | 0.00 | 0.00 | 0.00 | 6207.64 | 0.00 | 0.00 | 0.00 | 6207.64 |
| 332+00 | 33200.00 | 50.00 | 524.94 | 0.00 | 0.00 | 0.00 | 1000.28 | 0.00 | 0.00 | 0.00 | 7207.92 | 0.00 | 0.00 | 0.00 | 7207.92 |
| 332+50 | 33250.00 | 50.00 | 487.32 | 0.00 | 0.00 | 0.00 | 937.28 | 0.00 | 0.00 | 0.00 | 8145.19 | 0.00 | 0.00 | 0.00 | 8145.19 |
| 333+00 | 33300.00 | 50.00 | 509.95 | 0.00 | 0.00 | 0.00 | 923.40 | 0.00 | 0.00 | 0.00 | 9068.59 | 0.00 | 0.00 | 0.00 | 9068.59 |
| 333+50 | 33350.00 | 50.00 | 636.53 | 0.00 | 0.00 | 0.00 | 1061.56 | 0.00 | 0.00 | 0.00 | 10130.15 | 0.00 | 0.00 | 0.00 | 10130.15 |
| 334+00 | 33400.00 | 50.00 | 839.03 | 0.00 | 0.00 | 0.00 | 1366.26 | 0.00 | 0.00 | 0.00 | 11496.41 | 0.00 | 0.00 | 0.00 | 11496.41 |
| 334+00 | 33400.00 | 0.00 | 946.98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 11496.41 | 0.00 | 0.00 | 0.00 | 11496.41 |
| 334+50 | 33450.00 | 50.00 | 1004.90 | 0.00 | 0.00 | 0.00 | 1807.30 | 0.00 | 0.00 | 0.00 | 13303.70 | 0.00 | 0.00 | 0.00 | 13303.70 |
| 335+00 | 33500.00 | 50.00 | 980.41 | 0.00 | 0.00 | 0.00 | 1838.25 | 0.00 | 0.00 | 0.00 | 15141.95 | 0.00 | 0.00 | 0.00 | 15141.95 |
| 335+31 | 33530.81 | 30.81 | 794.24 | 0.00 | 0.00 | 0.00 | 1012.54 | 0.00 | 0.00 | 0.00 | 16154.49 | 0.00 | 0.00 | 0.00 | 16154.49 |
| 335+31 | 33530.81 | 0.00 | 977.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 16154.49 | 0.00 | 0.00 | 0.00 | 16154.49 |
| 335+50 | 33550.00 | 19.19 | 797.11 | 0.00 | 0.00 | 0.00 | 630.82 | 0.00 | 0.00 | 0.00 | 16785.31 | 0.00 | 0.00 | 0.00 | 16785.31 |
| 336+00 | 33600.00 | 50.00 | 724.23 | 0.00 | 0.00 | 0.00 | 1408.65 | 0.00 | 0.00 | 0.00 | 18193.96 | 0.00 | 0.00 | 0.00 | 18193.96 |
| 336+50 | 33650.00 | 50.00 | 647.57 | 0.00 | 0.00 | 0.00 | 1270.19 | 0.00 | 0.00 | 0.00 | 19464.14 | 0.00 | 0.00 | 0.00 | 19464.14 |
| 337+00 | 33700.00 | 50.00 | 570.36 | 0.00 | 0.00 | 0.00 | 1127.71 | 0.00 | 0.00 | 0.00 | 20591.85 | 0.00 | 0.00 | 0.00 | 20591.85 |
| 337+50 | 33750.00 | 50.00 | 585.72 | 0.00 | 0.00 | 0.00 | 1070.44 | 0.00 | 0.00 | 0.00 | 21662.30 | 0.00 | 0.00 | 0.00 | 21662.30 |
| 337+84 | 33784.05 | 34.05 | 613.49 | 0.00 | 0.00 | 0.00 | 756.17 | 0.00 | 0.00 | 0.00 | 22418.47 | 0.00 | 0.00 | 0.00 | 22418.47 |
| 337+84 | 33784.05 | 0.00 | 645.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 22418.47 | 0.00 | 0.00 | 0.00 | 22418.47 |
| 338+00 | 33800.00 | 15.95 | 603.96 | 0.00 | 0.00 | 0.00 | 369.09 | 0.00 | 0.00 | 0.00 | 22787.55 | 0.00 | 0.00 | 0.00 | 22787.55 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4635
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 2 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) | | | | Incremental Vol (CY) (Unadjusted) | | | | Cumulative Vol (CY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Expanded Fill | Expanded EBS Backfill | Reduced EBS In Fill | Mass Ordinate |
| | | | | | | | Note 1 | Note 2 | Note 3 | | 1.0 | 1.1 | 1.3 Note 4 | 0.8 Note 5 | Note 6 |
| 338+50 | 33850.00 | 50.00 | 544.94 | 0.00 | 0.00 | 0.00 | 1063.80 | 0.00 | 0.00 | 0.00 | 23851.35 | 0.00 | 0.00 | 0.00 | 23851.35 |
| 339+00 | 33900.00 | 50.00 | 499.78 | 0.00 | 0.00 | 0.00 | 967.33 | 0.00 | 0.00 | 0.00 | 24818.68 | 0.00 | 0.00 | 0.00 | 24818.68 |
| 339+50 | 33950.00 | 50.00 | 568.89 | 0.00 | 0.00 | 0.00 | 989.51 | 0.00 | 0.00 | 0.00 | 25808.19 | 0.00 | 0.00 | 0.00 | 25808.19 |
| 340+00 | 34000.00 | 50.00 | 506.47 | 0.00 | 0.00 | 0.00 | 995.70 | 0.00 | 0.00 | 0.00 | 26803.90 | 0.00 | 0.00 | 0.00 | 26803.90 |
| 340+50 | 34050.00 | 50.00 | 289.31 | 0.00 | 0.00 | 0.00 | 736.83 | 0.00 | 0.00 | 0.00 | 27540.73 | 0.00 | 0.00 | 0.00 | 27540.73 |
| 341+00 | 34100.00 | 50.00 | 282.20 | 0.00 | 0.00 | 0.00 | 529.18 | 0.00 | 0.00 | 0.00 | 28069.91 | 0.00 | 0.00 | 0.00 | 28069.91 |
| 341+50 | 34150.00 | 50.00 | 297.30 | 0.00 | 0.00 | 0.00 | 536.57 | 0.00 | 0.00 | 0.00 | 28606.48 | 0.00 | 0.00 | 0.00 | 28606.48 |
| 342+00 | 34200.00 | 50.00 | 314.09 | 0.00 | 0.00 | 0.00 | 566.10 | 0.00 | 0.00 | 0.00 | 29172.58 | 0.00 | 0.00 | 0.00 | 29172.58 |
| 342+50 | 34250.00 | 50.00 | 335.22 | 0.00 | 0.00 | 0.00 | 601.21 | 0.00 | 0.00 | 0.00 | 29773.79 | 0.00 | 0.00 | 0.00 | 29773.79 |
| 343+00 | 34300.00 | 50.00 | 369.24 | 0.00 | 0.00 | 0.00 | 652.28 | 0.00 | 0.00 | 0.00 | 30426.07 | 0.00 | 0.00 | 0.00 | 30426.07 |
| 343+41 | 34340.54 | 40.54 | 404.06 | 0.00 | 0.00 | 0.00 | 580.55 | 0.00 | 0.00 | 0.00 | 31006.62 | 0.00 | 0.00 | 0.00 | 31006.62 |
| 343+41 | 34340.54 | 0.00 | 297.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 31006.62 | 0.00 | 0.00 | 0.00 | 31006.62 |
| 343+50 | 34350.00 | 9.46 | 304.87 | 0.00 | 0.00 | 0.00 | 105.53 | 0.00 | 0.00 | 0.00 | 31112.15 | 0.00 | 0.00 | 0.00 | 31112.15 |
| 344+00 | 34400.00 | 50.00 | 330.83 | 0.00 | 0.00 | 0.00 | 588.61 | 0.00 | 0.00 | 0.00 | 31700.76 | 0.00 | 0.00 | 0.00 | 31700.76 |
| 344+50 | 34450.00 | 50.00 | 324.94 | 0.00 | 0.00 | 0.00 | 607.19 | 0.00 | 0.00 | 0.00 | 32307.96 | 0.00 | 0.00 | 0.00 | 32307.96 |
| 345+00 | 34500.00 | 50.00 | 336.16 | 0.00 | 0.00 | 0.00 | 612.13 | 0.00 | 0.00 | 0.00 | 32920.09 | 0.00 | 0.00 | 0.00 | 32920.09 |
| 345+50 | 34550.00 | 50.00 | 322.23 | 0.00 | 0.00 | 0.00 | 609.62 | 0.00 | 0.00 | 0.00 | 33529.71 | 0.00 | 0.00 | 0.00 | 33529.71 |
| 346+00 | 34600.00 | 50.00 | 300.31 | 0.00 | 0.00 | 0.00 | 576.43 | 0.00 | 0.00 | 0.00 | 34106.13 | 0.00 | 0.00 | 0.00 | 34106.13 |
| 346+00 | 34600.00 | 0.00 | 255.68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 34106.13 | 0.00 | 0.00 | 0.00 | 34106.13 |
| 346+50 | 34650.00 | 50.00 | 252.89 | 0.00 | 0.00 | 0.00 | 470.90 | 0.00 | 0.00 | 0.00 | 34577.03 | 0.00 | 0.00 | 0.00 | 34577.03 |
| 347+00 | 34700.00 | 50.00 | 229.25 | 0.00 | 0.00 | 0.00 | 446.43 | 0.00 | 0.00 | 0.00 | 35023.46 | 0.00 | 0.00 | 0.00 | 35023.46 |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4636
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 2 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 347+00 | 34700.00 | 0.00 | 191.98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 35023.46 | 0.00 | 0.00 | 0.00 | 35023.46 |
| 347+50 | 34750.00 | 50.00 | 180.51 | 0.00 | 0.01 | 0.00 | 344.90 | 0.00 | 0.01 | 0.00 | 35368.36 | 0.01 | 0.00 | 0.00 | 35368.35 |
| 348+00 | 34800.00 | 50.00 | 162.31 | 0.00 | 0.11 | 0.00 | 317.43 | 0.00 | 0.11 | 0.00 | 35685.78 | 0.13 | 0.00 | 0.00 | 35685.65 |
| 348+50 | 34850.00 | 50.00 | 145.12 | 0.00 | 0.26 | 0.00 | 284.66 | 0.00 | 0.34 | 0.00 | 35970.44 | 0.51 | 0.00 | 0.00 | 35969.93 |
| 349+00 | 34900.00 | 50.00 | 134.20 | 0.00 | 0.57 | 0.00 | 258.63 | 0.00 | 0.77 | 0.00 | 36229.07 | 1.35 | 0.00 | 0.00 | 36227.71 |
| 349+50 | 34950.00 | 50.00 | 119.95 | 0.00 | 0.69 | 0.00 | 235.32 | 0.00 | 1.17 | 0.00 | 36464.39 | 2.64 | 0.00 | 0.00 | 36461.76 |
| 349+50 | 34950.00 | 0.00 | 101.75 | 0.00 | 0.69 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 36464.39 | 2.64 | 0.00 | 0.00 | 36461.76 |
| 350+00 | 35000.00 | 50.00 | 90.06 | 0.00 | 0.91 | 0.00 | 177.60 | 0.00 | 1.48 | 0.00 | 36642.00 | 4.27 | 0.00 | 0.00 | 36637.73 |
| 350+50 | 35050.00 | 50.00 | 82.74 | 0.00 | 0.61 | 0.00 | 160.00 | 0.00 | 1.41 | 0.00 | 36802.00 | 5.82 | 0.00 | 0.00 | 36796.18 |
| 351+00 | 35100.00 | 50.00 | 81.14 | 0.00 | 0.13 | 0.00 | 151.74 | 0.00 | 0.69 | 0.00 | 36953.74 | 6.57 | 0.00 | 0.00 | 36947.17 |
| 351+50 | 35150.00 | 50.00 | 86.21 | 0.00 | 0.00 | 0.00 | 154.95 | 0.00 | 0.12 | 0.00 | 37108.69 | 6.70 | 0.00 | 0.00 | 37101.99 |
| 352+00 | 35200.00 | 50.00 | 92.16 | 0.00 | 0.00 | 0.00 | 165.16 | 0.00 | 0.00 | 0.00 | 37273.85 | 6.70 | 0.00 | 0.00 | 37267.15 |
| 352+50 | 35250.00 | 50.00 | 101.67 | 0.00 | 0.00 | 0.00 | 179.47 | 0.00 | 0.00 | 0.00 | 37453.32 | 6.70 | 0.00 | 0.00 | 37446.62 |
| 353+00 | 35300.00 | 50.00 | 110.30 | 0.00 | 0.00 | 0.00 | 196.27 | 0.00 | 0.00 | 0.00 | 37649.59 | 6.70 | 0.00 | 0.00 | 37642.89 |
| 353+31 BK | 35331.33 | 31.33 | 115.10 | 0.00 | 0.00 | 0.00 | 130.77 | 0.00 | 0.00 | 0.00 | 37780.36 | 6.70 | 0.00 | 0.00 | 37773.66 |
| | | | | | Column totals | | 46392.97 | 0.00 | 6.62 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4637
September 14, 2015

**Division 2 USH 45 SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 333+42 AH | 33342.18 | 0.00 | 0.00 | 0.00 | 181.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 333+50 | 33350.00 | 7.82 | 0.00 | 0.00 | 245.66 | 0.00 | 0.00 | 0.00 | 61.87 | 0.00 | 0.00 | 68.06 | 0.00 | 0.00 | -68.06 |
| 333+85 | 33385.09 | 35.09 | 0.00 | 0.00 | 375.48 | 0.00 | 0.00 | 0.00 | 403.63 | 0.00 | 0.00 | 512.05 | 0.00 | 0.00 | -512.05 |
| 333+85 | 33385.09 | 0.00 | 44.95 | 0.00 | 374.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 512.05 | 0.00 | 0.00 | -512.05 |
| 334+00 | 33400.00 | 14.91 | 44.94 | 0.00 | -11.15 | 0.00 | 24.82 | 0.00 | 100.39 | 0.00 | 24.82 | 622.48 | 0.00 | 0.00 | -597.66 |
| 334+50 | 33450.00 | 50.00 | 47.32 | 0.00 | 68.36 | 0.00 | 85.43 | 0.00 | 52.97 | 0.00 | 110.25 | 680.75 | 0.00 | 0.00 | -570.50 |
| 335+00 | 33500.00 | 50.00 | 44.82 | 0.00 | 150.02 | 0.00 | 85.31 | 0.00 | 202.20 | 0.00 | 195.56 | 903.17 | 0.00 | 0.00 | -707.61 |
| 335+02 | 33501.53 | 1.53 | 44.81 | 0.00 | 152.04 | 0.00 | 2.54 | 0.00 | 8.56 | 0.00 | 198.10 | 912.59 | 0.00 | 0.00 | -714.49 |
| 335+02 | 33501.53 | 0.00 | 0.00 | 0.00 | 151.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 198.10 | 912.59 | 0.00 | 0.00 | -714.49 |
| 335+31 BK | 33531.33 | 29.80 | 2.13 | 0.00 | 0.62 | 0.00 | 1.18 | 0.00 | 28.07 | 0.00 | 199.28 | 943.47 | 0.00 | 0.00 | -744.19 |
| | | | | | Column totals | | 199.28 | 0.00 | 857.70 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4638
September 14, 2015


9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:27 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew13 PLOT SCALE : 1:1

**Division 2 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 88+00 AH | 8800.00 | 0.00 | 108.32 | 0.00 | 15.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88+50 | 8850.00 | 50.00 | 102.61 | 0.00 | 14.61 | 0.00 | 195.31 | 0.00 | 27.79 | 0.00 | 195.31 | 30.57 | 0.00 | 0.00 | 164.74 |
| 89+00 | 8900.00 | 50.00 | 100.04 | 0.00 | 14.67 | 0.00 | 187.64 | 0.00 | 27.11 | 0.00 | 382.94 | 60.39 | 0.00 | 0.00 | 322.56 |
| 89+50 | 8950.00 | 50.00 | 94.58 | 0.00 | 14.67 | 0.00 | 180.20 | 0.00 | 27.17 | 0.00 | 563.15 | 90.27 | 0.00 | 0.00 | 472.88 |
| 90+00 | 9000.00 | 50.00 | 90.13 | 0.00 | 14.67 | 0.00 | 171.03 | 0.00 | 27.17 | 0.00 | 734.18 | 120.15 | 0.00 | 0.00 | 614.02 |
| 90+50 | 9050.00 | 50.00 | 86.27 | 0.00 | 14.67 | 0.00 | 163.33 | 0.00 | 27.17 | 0.00 | 897.51 | 150.04 | 0.00 | 0.00 | 747.47 |
| 91+00 | 9100.00 | 50.00 | 74.53 | 0.00 | 14.67 | 0.00 | 148.89 | 0.00 | 27.17 | 0.00 | 1046.40 | 179.92 | 0.00 | 0.00 | 866.48 |
| 91+50 | 9150.00 | 50.00 | 65.93 | 0.00 | 14.66 | 0.00 | 130.06 | 0.00 | 27.16 | 0.00 | 1176.45 | 209.79 | 0.00 | 0.00 | 966.66 |
| 92+00 | 9200.00 | 50.00 | 55.77 | 0.00 | 14.67 | 0.00 | 112.69 | 0.00 | 27.16 | 0.00 | 1289.14 | 239.67 | 0.00 | 0.00 | 1049.47 |
| 92+50 | 9250.00 | 50.00 | 44.04 | 0.00 | 14.67 | 0.00 | 92.42 | 0.00 | 27.17 | 0.00 | 1381.56 | 269.55 | 0.00 | 0.00 | 1112.00 |
| 93+00 | 9300.00 | 50.00 | 30.05 | 0.00 | 14.67 | 0.00 | 68.60 | 0.00 | 27.17 | 0.00 | 1450.16 | 299.43 | 0.00 | 0.00 | 1150.72 |
| 93+50 | 9350.00 | 50.00 | 19.39 | 0.00 | 14.67 | 0.00 | 45.78 | 0.00 | 27.17 | 0.00 | 1495.94 | 329.32 | 0.00 | 0.00 | 1166.62 |
| 94+00 | 9400.00 | 50.00 | 8.83 | 0.00 | 28.97 | 0.00 | 26.13 | 0.00 | 40.41 | 0.00 | 1522.06 | 373.77 | 0.00 | 0.00 | 1148.30 |
| 94+50 | 9450.00 | 50.00 | 0.75 | 0.00 | 30.76 | 0.00 | 8.87 | 0.00 | 55.31 | 0.00 | 1530.94 | 434.60 | 0.00 | 0.00 | 1096.33 |
| 95+00 | 9500.00 | 50.00 | 0.00 | 0.00 | 43.85 | 0.00 | 0.69 | 0.00 | 69.08 | 0.00 | 1531.63 | 510.59 | 0.00 | 0.00 | 1021.04 |
| 95+50 | 9550.00 | 50.00 | 0.00 | 0.00 | 59.23 | 0.00 | 0.00 | 0.00 | 95.44 | 0.00 | 1531.63 | 615.58 | 0.00 | 0.00 | 916.05 |
| 96+00 | 9600.00 | 50.00 | 0.00 | 0.00 | 72.31 | 0.00 | 0.00 | 0.00 | 121.80 | 0.00 | 1531.63 | 749.56 | 0.00 | 0.00 | 782.07 |
| 96+50 | 9650.00 | 50.00 | 0.00 | 0.00 | 77.44 | 0.00 | 0.00 | 0.00 | 138.66 | 0.00 | 1531.63 | 902.08 | 0.00 | 0.00 | 629.55 |
| 97+00 | 9700.00 | 50.00 | 0.00 | 0.00 | 90.97 | 0.00 | 0.00 | 0.00 | 155.94 | 0.00 | 1531.63 | 1073.61 | 0.00 | 0.00 | 458.02 |
| 97+50 | 9750.00 | 50.00 | 0.00 | 0.00 | 97.47 | 0.00 | 0.00 | 0.00 | 174.48 | 0.00 | 1531.63 | 1265.54 | 0.00 | 0.00 | 266.09 |
| 98+00 | 9800.00 | 50.00 | 0.00 | 0.00 | 90.94 | 0.00 | 0.00 | 0.00 | 174.45 | 0.00 | 1531.63 | 1457.44 | 0.00 | 0.00 | 74.19 |
| 98+50 | 9850.00 | 50.00 | 0.00 | 0.00 | 95.11 | 0.00 | 0.00 | 0.00 | 172.27 | 0.00 | 1531.63 | 1646.93 | 0.00 | 0.00 | -115.30 |
| 99+00 | 9900.00 | 50.00 | 0.00 | 0.00 | 206.82 | 0.00 | 0.00 | 0.00 | 279.56 | 0.00 | 1531.63 | 1954.46 | 0.00 | 0.00 | -422.83 |
| 99+40 | 9940.14 | 40.14 | 0.00 | 0.00 | 441.98 | 0.00 | 0.00 | 0.00 | 482.27 | 0.00 | 1531.63 | 2484.96 | 0.00 | 0.00 | -953.33 |
| 99+45 | 9945.46 | 5.32 | 0.00 | 0.00 | 736.68 | 0.00 | 0.00 | 0.00 | 116.12 | 0.00 | 1531.63 | 2612.69 | 0.00 | 0.00 | -1081.06 |
| 99+86 BK | 9985.92 | 40.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 551.96 | 0.00 | 1531.63 | 3219.85 | 0.00 | 0.00 | -1688.22 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4639
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 2 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill Note 4 1.3 | Cumulative Vol (CY) Reduced EBS In Fill Note 5 0.8 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 101+91 AH | 10190.92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102+17 | 10216.65 | 25.73 | 0.00 | 0.00 | 431.09 | 0.00 | 0.00 | 0.00 | 205.41 | 0.00 | 0.00 | 225.95 | 0.00 | 0.00 | -225.95 |
| 102+22 | 10221.98 | 5.33 | 0.00 | 0.00 | 154.80 | 0.00 | 0.00 | 0.00 | 57.83 | 0.00 | 0.00 | 289.56 | 0.00 | 0.00 | -289.56 |
| 102+50 | 10250.00 | 28.02 | 0.00 | 0.00 | 158.94 | 0.00 | 0.00 | 0.00 | 162.80 | 0.00 | 0.00 | 468.64 | 0.00 | 0.00 | -468.64 |
| 103+00 | 10300.00 | 50.00 | 0.00 | 0.00 | 125.78 | 0.00 | 0.00 | 0.00 | 263.63 | 0.00 | 0.00 | 758.63 | 0.00 | 0.00 | -758.63 |
| 103+50 | 10350.00 | 50.00 | 0.00 | 0.00 | 272.85 | 0.00 | 0.00 | 0.00 | 369.10 | 0.00 | 0.00 | 1164.64 | 0.00 | 0.00 | -1164.64 |
| 104+00 | 10400.00 | 50.00 | 0.00 | 0.00 | 152.36 | 0.00 | 0.00 | 0.00 | 393.71 | 0.00 | 0.00 | 1597.72 | 0.00 | 0.00 | -1597.72 |
| 104+50 | 10450.00 | 50.00 | 0.00 | 0.00 | 150.85 | 0.00 | 0.00 | 0.00 | 280.75 | 0.00 | 0.00 | 1906.55 | 0.00 | 0.00 | -1906.55 |
| 105+00 | 10500.00 | 50.00 | 0.00 | 0.00 | 122.89 | 0.00 | 0.00 | 0.00 | 253.46 | 0.00 | 0.00 | 2185.36 | 0.00 | 0.00 | -2185.36 |
| 105+50 | 10550.00 | 50.00 | 0.00 | 0.00 | 101.11 | 0.00 | 0.00 | 0.00 | 207.41 | 0.00 | 0.00 | 2413.51 | 0.00 | 0.00 | -2413.51 |
| 106+00 | 10600.00 | 50.00 | 0.00 | 0.00 | 78.91 | 0.00 | 0.00 | 0.00 | 166.69 | 0.00 | 0.00 | 2596.86 | 0.00 | 0.00 | -2596.86 |
| 106+50 | 10650.00 | 50.00 | 0.00 | 0.00 | 54.33 | 0.00 | 0.00 | 0.00 | 123.37 | 0.00 | 0.00 | 2732.57 | 0.00 | 0.00 | -2732.57 |
| 107+00 | 10700.00 | 50.00 | 0.00 | 0.00 | 31.15 | 0.00 | 0.00 | 0.00 | 79.15 | 0.00 | 0.00 | 2819.63 | 0.00 | 0.00 | -2819.63 |
| 107+50 | 10750.00 | 50.00 | 4.31 | 0.00 | 10.82 | 0.00 | 3.99 | 0.00 | 38.86 | 0.00 | 3.99 | 2862.38 | 0.00 | 0.00 | -2858.39 |
| 108+00 | 10800.00 | 50.00 | 18.48 | 0.00 | 9.64 | 0.00 | 21.10 | 0.00 | 18.94 | 0.00 | 25.09 | 2883.22 | 0.00 | 0.00 | -2858.12 |
| 108+50 | 10850.00 | 50.00 | 25.88 | 0.00 | 7.96 | 0.00 | 41.07 | 0.00 | 16.30 | 0.00 | 66.17 | 2901.14 | 0.00 | 0.00 | -2834.98 |
| 109+00 | 10900.00 | 50.00 | 35.32 | 0.00 | 5.61 | 0.00 | 56.67 | 0.00 | 12.56 | 0.00 | 122.83 | 2914.96 | 0.00 | 0.00 | -2792.13 |
| 109+50 | 10950.00 | 50.00 | 36.25 | 0.00 | 6.00 | 0.00 | 66.27 | 0.00 | 10.75 | 0.00 | 189.10 | 2926.79 | 0.00 | 0.00 | -2737.69 |
| 110+00 | 11000.00 | 50.00 | 16.02 | 0.00 | 8.71 | 0.00 | 48.40 | 0.00 | 13.62 | 0.00 | 237.50 | 2941.77 | 0.00 | 0.00 | -2704.27 |
| 110+50 | 11050.00 | 50.00 | 0.02 | 0.00 | 25.33 | 0.00 | 14.85 | 0.00 | 31.52 | 0.00 | 252.35 | 2976.44 | 0.00 | 0.00 | -2724.09 |
| 111+00 | 11100.00 | 50.00 | 0.00 | 0.00 | 59.07 | 0.00 | 0.02 | 0.00 | 78.15 | 0.00 | 252.37 | 3062.40 | 0.00 | 0.00 | -2810.03 |
| 111+45 | 11144.67 | 44.67 | 0.00 | 0.00 | 357.14 | 0.00 | 0.00 | 0.00 | 344.30 | 0.00 | 252.37 | 3441.13 | 0.00 | 0.00 | -3188.76 |
| 111+77 BK | 11177.18 | 32.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 215.01 | 0.00 | 252.37 | 3677.65 | 0.00 | 0.00 | -3425.28 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4640
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 2 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 112+73 AH | 11273.43 | 0.00 | 0.00 | 0.00 | 428.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113+00 | 11300.00 | 26.57 | 0.00 | 0.00 | 261.63 | 0.00 | 0.00 | 0.00 | 339.62 | 0.00 | 0.00 | 373.59 | 0.00 | 0.00 | -373.59 |
| 113+50 | 11350.00 | 50.00 | 0.00 | 0.00 | 205.87 | 0.00 | 0.00 | 0.00 | 432.87 | 0.00 | 0.00 | 849.74 | 0.00 | 0.00 | -849.74 |
| 114+00 | 11400.00 | 50.00 | 0.00 | 0.00 | 239.05 | 0.00 | 0.00 | 0.00 | 411.96 | 0.00 | 0.00 | 1302.90 | 0.00 | 0.00 | -1302.90 |
| 114+50 | 11450.00 | 50.00 | 0.00 | 0.00 | 292.05 | 0.00 | 0.00 | 0.00 | 491.76 | 0.00 | 0.00 | 1843.84 | 0.00 | 0.00 | -1843.84 |
| 115+00 | 11500.00 | 50.00 | 0.00 | 0.00 | 355.81 | 0.00 | 0.00 | 0.00 | 599.87 | 0.00 | 0.00 | 2503.70 | 0.00 | 0.00 | -2503.70 |
| 115+50 | 11550.00 | 50.00 | 0.00 | 0.00 | 398.44 | 0.00 | 0.00 | 0.00 | 698.38 | 0.00 | 0.00 | 3271.91 | 0.00 | 0.00 | -3271.91 |
| 116+00 | 11600.00 | 50.00 | 0.00 | 0.00 | 410.46 | 0.00 | 0.00 | 0.00 | 748.98 | 0.00 | 0.00 | 4095.79 | 0.00 | 0.00 | -4095.79 |
| 116+50 | 11650.00 | 50.00 | 0.00 | 0.00 | 418.42 | 0.00 | 0.00 | 0.00 | 767.48 | 0.00 | 0.00 | 4940.02 | 0.00 | 0.00 | -4940.02 |
| 117+00 | 11700.00 | 50.00 | 0.00 | 0.00 | 582.22 | 0.00 | 0.00 | 0.00 | 926.52 | 0.00 | 0.00 | 5959.19 | 0.00 | 0.00 | -5959.19 |
| 117+00 | 11700.00 | 0.00 | 0.00 | 0.00 | 582.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5959.19 | 0.00 | 0.00 | -5959.19 |
| 117+50 | 11750.00 | 50.00 | 0.00 | 0.00 | 568.95 | 0.00 | 0.00 | 0.00 | 1065.89 | 0.00 | 0.00 | 7131.67 | 0.00 | 0.00 | -7131.67 |
| 118+00 | 11800.00 | 50.00 | 0.00 | 0.00 | 530.70 | 0.00 | 0.00 | 0.00 | 1018.19 | 0.00 | 0.00 | 8251.68 | 0.00 | 0.00 | -8251.68 |
| 118+50 | 11850.00 | 50.00 | 0.00 | 0.00 | 515.14 | 0.00 | 0.00 | 0.00 | 968.37 | 0.00 | 0.00 | 9316.89 | 0.00 | 0.00 | -9316.89 |
| 119+00 | 11900.00 | 50.00 | 0.00 | 0.00 | 528.40 | 0.00 | 0.00 | 0.00 | 966.24 | 0.00 | 0.00 | 10379.76 | 0.00 | 0.00 | -10379.76 |
| 119+50 | 11950.00 | 50.00 | 0.00 | 0.00 | 554.26 | 0.00 | 0.00 | 0.00 | 1002.46 | 0.00 | 0.00 | 11482.47 | 0.00 | 0.00 | -11482.47 |
| 120+00 | 12000.00 | 50.00 | 0.06 | 0.00 | 560.97 | 0.00 | 0.06 | 0.00 | 1032.62 | 0.00 | 0.06 | 12618.35 | 0.00 | 0.00 | -12618.29 |
| 120+50 | 12050.00 | 50.00 | 1.06 | 0.00 | 595.26 | 0.00 | 1.04 | 0.00 | 1070.58 | 0.00 | 1.09 | 13795.99 | 0.00 | 0.00 | -13794.90 |
| 121+00 | 12100.00 | 50.00 | 1.08 | 0.00 | 638.82 | 0.00 | 1.98 | 0.00 | 1142.67 | 0.00 | 3.07 | 15052.92 | 0.00 | 0.00 | -15049.85 |
| 121+50 | 12150.00 | 50.00 | 0.29 | 0.00 | 658.94 | 0.00 | 1.27 | 0.00 | 1201.63 | 0.00 | 4.34 | 16374.72 | 0.00 | 0.00 | -16370.37 |
| 122+00 | 12200.00 | 50.00 | 0.08 | 0.00 | 676.82 | 0.00 | 0.34 | 0.00 | 1236.81 | 0.00 | 4.69 | 17735.21 | 0.00 | 0.00 | -17730.53 |
| 122+50 | 12250.00 | 50.00 | 0.00 | 0.00 | 661.37 | 0.00 | 0.07 | 0.00 | 1239.06 | 0.00 | 4.76 | 19098.18 | 0.00 | 0.00 | -19093.42 |
| 123+00 | 12300.00 | 50.00 | 0.00 | 0.00 | 638.22 | 0.00 | 0.00 | 0.00 | 1203.32 | 0.00 | 4.76 | 20421.84 | 0.00 | 0.00 | -20417.08 |
| 123+50 | 12350.00 | 50.00 | 0.01 | 0.00 | 617.63 | 0.00 | 0.01 | 0.00 | 1162.82 | 0.00 | 4.77 | 21700.95 | 0.00 | 0.00 | -21696.18 |

1

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4641
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 2 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 124+50 | 12450.00 | 50.00 | 0.00 | 0.00 | 610.38 | 0.00 | 1.96 | 0.00 | 1098.00 | 0.00 | 8.70 | 24123.93 | 0.00 | 0.00 | -24115.23 |
| 125+00 | 12500.00 | 50.00 | 1.75 | 0.00 | 641.60 | 0.00 | 1.62 | 0.00 | 1159.24 | 0.00 | 10.32 | 25399.10 | 0.00 | 0.00 | -25388.77 |
| 125+50 | 12550.00 | 50.00 | 1.82 | 0.00 | 633.34 | 0.00 | 3.31 | 0.00 | 1180.50 | 0.00 | 13.63 | 26697.65 | 0.00 | 0.00 | -26684.02 |
| 126+00 | 12600.00 | 50.00 | 0.00 | 0.00 | 609.63 | 0.00 | 1.69 | 0.00 | 1150.90 | 0.00 | 15.31 | 27963.63 | 0.00 | 0.00 | -27948.32 |
| 126+50 | 12650.00 | 50.00 | 0.00 | 0.00 | 605.92 | 0.00 | 0.00 | 0.00 | 1125.51 | 0.00 | 15.31 | 29201.69 | 0.00 | 0.00 | -29186.38 |
| 126+86 | 12685.83 | 35.83 | 0.00 | 0.00 | 648.57 | 0.00 | 0.00 | 0.00 | 832.38 | 0.00 | 15.31 | 30117.31 | 0.00 | 0.00 | -30101.99 |
| 128+66 | 12865.50 | 179.67 | 1.24 | 0.00 | 906.30 | 0.00 | 4.13 | 0.00 | 5173.40 | 0.00 | 19.44 | 35808.05 | 0.00 | 0.00 | -35788.61 |
| 129+11 BK | 12910.83 | 45.33 | 0.00 | 0.00 | 0.00 | 1.00 | 1.04 | 0.00 | 760.79 | 0.00 | 20.48 | 36644.91 | 0.00 | 0.00 | -36624.43 |
| 130+07 AH | 13007.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 132+30 | 13230.43 | 223.39 | 0.00 | 0.00 | 1439.17 | 0.00 | 0.00 | 0.00 | 5953.63 | 0.00 | 0.00 | 6549.00 | 0.00 | 0.00 | -6549.00 |
| 132+50 | 13250.00 | 19.57 | 0.00 | 0.00 | 1657.93 | 0.00 | 0.00 | 0.00 | 1122.41 | 0.00 | 0.00 | 7783.65 | 0.00 | 0.00 | -7783.65 |
| 133+00 | 13300.00 | 50.00 | 0.00 | 0.00 | 1435.31 | 0.00 | 0.00 | 0.00 | 2864.11 | 0.00 | 0.00 | 10934.17 | 0.00 | 0.00 | -10934.17 |
| 133+50 | 13350.00 | 50.00 | 0.00 | 0.00 | 955.92 | 0.00 | 0.00 | 0.00 | 2214.10 | 0.00 | 0.00 | 13369.68 | 0.00 | 0.00 | -13369.68 |
| 133+89 | 13388.57 | 38.57 | 32.11 | 0.00 | 914.54 | 0.00 | 22.93 | 0.00 | 1335.99 | 0.00 | 22.93 | 14839.28 | 0.00 | 0.00 | -14816.34 |
| 133+89 | 13388.57 | 0.00 | 0.00 | 0.00 | 530.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 22.93 | 14839.28 | 0.00 | 0.00 | -14816.34 |
| 134+00 | 13400.00 | 11.43 | 0.00 | 0.00 | 526.33 | 0.00 | 0.00 | 0.00 | 223.60 | 0.00 | 22.93 | 15085.24 | 0.00 | 0.00 | -15062.30 |
| 134+50 | 13450.00 | 50.00 | 0.00 | 0.00 | 506.81 | 0.00 | 0.00 | 0.00 | 956.61 | 0.00 | 22.93 | 16137.51 | 0.00 | 0.00 | -16114.58 |
| 135+00 | 13500.00 | 50.00 | 0.00 | 0.00 | 479.23 | 0.00 | 0.00 | 0.00 | 913.00 | 0.00 | 22.93 | 17141.81 | 0.00 | 0.00 | -17118.88 |
| 135+50 | 13550.00 | 50.00 | 0.00 | 0.00 | 435.72 | 0.00 | 0.00 | 0.00 | 847.18 | 0.00 | 22.93 | 18073.71 | 0.00 | 0.00 | -18050.77 |
| 136+00 | 13600.00 | 50.00 | 0.00 | 0.00 | 351.70 | 0.00 | 0.00 | 0.00 | 729.09 | 0.00 | 22.93 | 18875.71 | 0.00 | 0.00 | -18852.77 |
| 136+50 | 13650.00 | 50.00 | 0.00 | 0.00 | 200.03 | 0.00 | 0.00 | 0.00 | 510.86 | 0.00 | 22.93 | 19437.65 | 0.00 | 0.00 | -19414.72 |
| 136+53 | 13652.65 | 2.65 | 0.00 | 0.00 | 201.54 | 0.00 | 0.00 | 0.00 | 19.71 | 0.00 | 22.93 | 19459.33 | 0.00 | 0.00 | -19436.40 |
| 137+00 | 13700.00 | 47.35 | 0.10 | 0.00 | 200.26 | 0.00 | 0.09 | 0.00 | 352.32 | 0.00 | 23.02 | 19846.88 | 0.00 | 0.00 | -19823.86 |
| 137+50 | 13750.00 | 50.00 | 0.00 | 0.00 | 185.24 | 0.00 | 0.09 | 0.00 | 356.94 | 0.00 | 23.12 | 20239.52 | 0.00 | 0.00 | -20216.41 |
| 138+00 | 13800.00 | 50.00 | 0.00 | 0.00 | 132.31 | 0.00 | 0.00 | 0.00 | 294.03 | 0.00 | 23.12 | 20562.95 | 0.00 | 0.00 | -20539.84 |
| 138+50 | 13850.00 | 50.00 | 15.39 | 0.00 | 115.13 | 0.00 | 14.25 | 0.00 | 229.11 | 0.00 | 37.37 | 20814.97 | 0.00 | 0.00 | -20777.61 |

1

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4642
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 2 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 137+50 | 13750.00 | 50.00 | 0.00 | 0.00 | 185.24 | 0.00 | 0.09 | 0.00 | 356.94 | 0.00 | 23.12 | 20239.52 | 0.00 | 0.00 | -20216.41 |
| 138+00 | 13800.00 | 50.00 | 0.00 | 0.00 | 132.31 | 0.00 | 0.00 | 0.00 | 294.03 | 0.00 | 23.12 | 20562.95 | 0.00 | 0.00 | -20539.84 |
| 138+50 | 13850.00 | 50.00 | 15.39 | 0.00 | 115.13 | 0.00 | 14.25 | 0.00 | 229.11 | 0.00 | 37.37 | 20814.97 | 0.00 | 0.00 | -20777.61 |
| 139+00 | 13900.00 | 50.00 | 15.66 | 0.00 | 101.38 | 0.00 | 28.75 | 0.00 | 200.47 | 0.00 | 66.12 | 21035.49 | 0.00 | 0.00 | -20969.38 |
| 139+50 | 13950.00 | 50.00 | 7.11 | 0.00 | 76.37 | 0.00 | 21.08 | 0.00 | 164.58 | 0.00 | 87.20 | 21216.54 | 0.00 | 0.00 | -21129.34 |
| 140+00 | 14000.00 | 50.00 | 29.28 | 0.00 | 50.86 | 0.00 | 33.69 | 0.00 | 117.81 | 0.00 | 120.89 | 21346.12 | 0.00 | 0.00 | -21225.23 |
| 140+50 | 14050.00 | 50.00 | 55.29 | 0.00 | 63.30 | 0.00 | 78.31 | 0.00 | 105.70 | 0.00 | 199.20 | 21462.40 | 0.00 | 0.00 | -21263.20 |
| 140+93 | 14092.87 | 42.87 | 61.90 | 0.00 | 3.35 | 0.00 | 93.04 | 0.00 | 52.91 | 0.00 | 292.23 | 21520.60 | 0.00 | 0.00 | -21228.37 |
| 140+93 | 14092.87 | 0.00 | 11.01 | 0.00 | 3.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 292.23 | 21520.60 | 0.00 | 0.00 | -21228.37 |
| 141+00 | 14100.00 | 7.13 | 9.14 | 0.00 | 4.30 | 0.00 | 2.66 | 0.00 | 1.01 | 0.00 | 294.89 | 21521.71 | 0.00 | 0.00 | -21226.82 |
| 141+50 | 14150.00 | 50.00 | 3.18 | 0.00 | 13.31 | 0.00 | 11.41 | 0.00 | 16.31 | 0.00 | 306.30 | 21539.65 | 0.00 | 0.00 | -21233.35 |
| 142+00 | 14200.00 | 50.00 | 0.05 | 0.00 | 18.94 | 0.00 | 2.99 | 0.00 | 29.86 | 0.00 | 309.29 | 21572.50 | 0.00 | 0.00 | -21263.20 |
| 142+50 | 14250.00 | 50.00 | 0.00 | 0.00 | 21.10 | 0.00 | 0.05 | 0.00 | 37.07 | 0.00 | 309.34 | 21613.28 | 0.00 | 0.00 | -21303.94 |
| 143+00 BK | 14300.00 | 50.00 | 0.00 | 0.00 | 11.15 | 0.00 | 0.00 | 0.00 | 29.86 | 0.00 | 309.34 | 21646.12 | 0.00 | 0.00 | -21336.78 |
| | | | | | | Column totals | 2113.82 | 0.00 | 59262.30 | 0.00 | | | | | |

3

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4643
September 14, 2015

**Division 2 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 180+00 AH | 18000.00 | 0.00 | 93.83 | 0.00 | 191.92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 180+50 | 18050.00 | 50.00 | 45.54 | 0.00 | 203.46 | 0.00 | 129.05 | 0.00 | 366.09 | 0.00 | 129.05 | 402.70 | 0.00 | 0.00 | -273.66 |
| 181+00 | 18100.00 | 50.00 | 10.65 | 0.00 | 190.40 | 0.00 | 52.03 | 0.00 | 364.69 | 0.00 | 181.07 | 803.86 | 0.00 | 0.00 | -622.78 |
| 181+50 | 18150.00 | 50.00 | 2.12 | 0.00 | 162.15 | 0.00 | 11.82 | 0.00 | 326.44 | 0.00 | 192.90 | 1162.93 | 0.00 | 0.00 | -970.04 |
| 182+00 | 18200.00 | 50.00 | 4.98 | 0.00 | 134.85 | 0.00 | 6.57 | 0.00 | 275.00 | 0.00 | 199.47 | 1465.43 | 0.00 | 0.00 | -1265.96 |
| 182+50 | 18250.00 | 50.00 | 9.45 | 0.00 | 117.80 | 0.00 | 13.36 | 0.00 | 233.94 | 0.00 | 212.83 | 1722.76 | 0.00 | 0.00 | -1509.93 |
| 183+00 | 18300.00 | 50.00 | 15.72 | 0.00 | 103.11 | 0.00 | 23.31 | 0.00 | 204.55 | 0.00 | 236.14 | 1947.76 | 0.00 | 0.00 | -1711.63 |
| 183+50 | 18350.00 | 50.00 | 23.89 | 0.00 | 93.74 | 0.00 | 36.68 | 0.00 | 182.27 | 0.00 | 272.81 | 2148.26 | 0.00 | 0.00 | -1875.44 |
| 184+00 | 18400.00 | 50.00 | 27.68 | 0.00 | 70.07 | 0.00 | 47.75 | 0.00 | 151.68 | 0.00 | 320.56 | 2315.10 | 0.00 | 0.00 | -1994.54 |
| 184+50 | 18450.00 | 50.00 | 36.39 | 0.00 | 22.49 | 0.00 | 59.32 | 0.00 | 85.70 | 0.00 | 379.89 | 2409.38 | 0.00 | 0.00 | -2029.49 |
| 185+00 | 18500.00 | 50.00 | 86.34 | 0.00 | 0.00 | 0.00 | 113.64 | 0.00 | 20.82 | 0.00 | 493.53 | 2432.28 | 0.00 | 0.00 | -1938.76 |
| 185+50 | 18550.00 | 50.00 | 160.14 | 0.00 | 0.00 | 0.00 | 228.22 | 0.00 | 0.00 | 0.00 | 721.75 | 2432.28 | 0.00 | 0.00 | -1710.53 |
| 186+00 | 18600.00 | 50.00 | 806.50 | 0.00 | 4.14 | 0.00 | 895.04 | 0.00 | 3.83 | 0.00 | 1616.79 | 2436.50 | 0.00 | 0.00 | -819.71 |
| 186+50 | 18650.00 | 50.00 | 2267.67 | 0.00 | 7.27 | 0.00 | 2846.45 | 0.00 | 10.56 | 0.00 | 4463.24 | 2448.12 | 0.00 | 0.00 | 2015.12 |
| 187+00 | 18700.00 | 50.00 | 1886.98 | 0.00 | 160.01 | 0.00 | 3846.90 | 0.00 | 154.89 | 0.00 | 8310.14 | 2618.50 | 0.00 | 0.00 | 5691.64 |
| 187+50 | 18750.00 | 50.00 | 1531.08 | 0.00 | 14.57 | 0.00 | 3164.87 | 0.00 | 161.65 | 0.00 | 11475.01 | 2796.31 | 0.00 | 0.00 | 8678.70 |
| 188+00 | 18800.00 | 50.00 | 1387.17 | 0.00 | 49.75 | 0.00 | 2702.08 | 0.00 | 59.56 | 0.00 | 14177.09 | 2861.82 | 0.00 | 0.00 | 11315.27 |
| 188+50 | 18850.00 | 50.00 | 427.87 | 0.00 | 7.94 | 0.00 | 1680.59 | 0.00 | 53.42 | 0.00 | 15857.69 | 2920.58 | 0.00 | 0.00 | 12937.10 |
| 189+00 | 18900.00 | 50.00 | 241.85 | 0.00 | 4.14 | 0.00 | 620.11 | 0.00 | 11.19 | 0.00 | 16477.80 | 2932.89 | 0.00 | 0.00 | 13544.91 |
| 189+50 | 18950.00 | 50.00 | 377.29 | 0.00 | 346.40 | 0.00 | 573.28 | 0.00 | 324.57 | 0.00 | 17051.07 | 3289.92 | 0.00 | 0.00 | 13761.16 |
| 189+79 | 18979.08 | 29.08 | 475.38 | 0.00 | 444.46 | 0.00 | 459.18 | 0.00 | 425.89 | 0.00 | 17510.25 | 3758.40 | 0.00 | 0.00 | 13751.85 |
| 189+79 | 18979.08 | 0.00 | 131.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 17510.25 | 3758.40 | 0.00 | 0.00 | 13751.85 |
| 190+00 | 19000.00 | 20.92 | 129.15 | 0.00 | 0.00 | 0.00 | 101.06 | 0.00 | 0.00 | 0.00 | 17611.31 | 3758.40 | 0.00 | 0.00 | 13852.91 |
| 190+50 | 19050.00 | 50.00 | 543.03 | 0.00 | 0.00 | 0.00 | 622.39 | 0.00 | 0.00 | 0.00 | 18233.70 | 3758.40 | 0.00 | 0.00 | 14475.30 |
| 191+00 | 19100.00 | 50.00 | 969.03 | 0.00 | 0.00 | 0.00 | 1400.06 | 0.00 | 0.00 | 0.00 | 19633.75 | 3758.40 | 0.00 | 0.00 | 15875.35 |
| 191+50 | 19150.00 | 50.00 | 817.85 | 0.00 | 0.00 | 0.00 | 1654.52 | 0.00 | 0.00 | 0.00 | 21288.27 | 3758.40 | 0.00 | 0.00 | 17529.87 |
| 192+00 BK | 19200.00 | 50.00 | 876.01 | 0.00 | 0.00 | 0.00 | 1568.39 | 0.00 | 0.00 | 0.00 | 22856.66 | 3758.40 | 0.00 | 0.00 | 19098.26 |
| | | | | | Column totals | | 22856.66 | 0.00 | 3416.73 | 0.00 | | | | | |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4644
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:28 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew19 PLOT SCALE : 1:1

**Division 2 IH 94 WB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 185+00 AH | 18500.00 | 0.00 | 404.65 | 0.00 | 649.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 185+50 | 18550.00 | 50.00 | 160.47 | 0.00 | 1397.32 | 0.00 | 523.26 | 0.00 | 1895.56 | 0.00 | 523.26 | 2085.12 | 0.00 | 0.00 | -1561.86 |
| 186+00 | 18600.00 | 50.00 | 0.02 | 0.00 | 1432.39 | 0.00 | 148.60 | 0.00 | 2620.10 | 0.00 | 671.86 | 4967.23 | 0.00 | 0.00 | -4295.37 |
| 186+50 | 18650.00 | 50.00 | 289.31 | 0.00 | 1088.44 | 0.00 | 267.90 | 0.00 | 2334.10 | 0.00 | 939.76 | 7534.75 | 0.00 | 0.00 | -6594.99 |
| 187+00 | 18700.00 | 50.00 | 1347.75 | 0.00 | 803.95 | 0.00 | 1515.80 | 0.00 | 1752.21 | 0.00 | 2455.56 | 9462.18 | 0.00 | 0.00 | -7006.62 |
| 187+50 | 18750.00 | 50.00 | 1869.17 | 0.00 | 89.52 | 0.00 | 2978.63 | 0.00 | 827.29 | 0.00 | 5434.19 | 10372.20 | 0.00 | 0.00 | -4938.01 |
| 188+00 | 18800.00 | 50.00 | 1620.18 | 0.00 | 0.00 | 0.00 | 3230.88 | 0.00 | 82.89 | 0.00 | 8665.06 | 10463.37 | 0.00 | 0.00 | -1798.31 |
| 188+50 | 18850.00 | 50.00 | 1287.33 | 0.00 | 0.00 | 0.00 | 2692.14 | 0.00 | 0.00 | 0.00 | 11357.20 | 10463.37 | 0.00 | 0.00 | 893.83 |
| 189+00 | 18900.00 | 50.00 | 505.47 | 0.00 | 4.05 | 0.00 | 1660.00 | 0.00 | 3.75 | 0.00 | 13017.20 | 10467.50 | 0.00 | 0.00 | 2549.71 |
| 189+50 | 18950.00 | 50.00 | 232.85 | 0.00 | 12.56 | 0.00 | 683.63 | 0.00 | 15.38 | 0.00 | 13700.83 | 10484.42 | 0.00 | 0.00 | 3216.42 |
| 189+59 | 18958.50 | 8.50 | 219.74 | 0.00 | 12.60 | 0.00 | 71.24 | 0.00 | 3.96 | 0.00 | 13772.07 | 10488.77 | 0.00 | 0.00 | 3283.30 |
| 189+59 | 18958.50 | 0.00 | 126.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 13772.07 | 10488.77 | 0.00 | 0.00 | 3283.30 |
| 190+00 | 19000.00 | 41.50 | 134.09 | 0.00 | 0.00 | 0.00 | 199.96 | 0.00 | 0.00 | 0.00 | 13972.04 | 10488.77 | 0.00 | 0.00 | 3483.26 |
| 190+50 | 19050.00 | 50.00 | 147.60 | 0.00 | 0.00 | 0.00 | 260.82 | 0.00 | 0.00 | 0.00 | 14232.86 | 10488.77 | 0.00 | 0.00 | 3744.09 |
| 191+00 | 19100.00 | 50.00 | 523.74 | 0.00 | 0.00 | 0.00 | 621.61 | 0.00 | 0.00 | 0.00 | 14854.47 | 10488.77 | 0.00 | 0.00 | 4365.70 |
| 191+50 | 19150.00 | 50.00 | 636.92 | 0.00 | 0.00 | 0.00 | 1074.69 | 0.00 | 0.00 | 0.00 | 15929.16 | 10488.77 | 0.00 | 0.00 | 5440.38 |
| 191+50 | 19150.00 | 0.00 | 855.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 15929.16 | 10488.77 | 0.00 | 0.00 | 5440.38 |
| 192+00 | 19200.00 | 50.00 | 849.31 | 0.00 | 0.00 | 0.00 | 1578.65 | 0.00 | 0.00 | 0.00 | 17507.80 | 10488.77 | 0.00 | 0.00 | 7019.03 |
| 192+50 | 19250.00 | 50.00 | 777.07 | 0.00 | 0.00 | 0.00 | 1505.91 | 0.00 | 0.00 | 0.00 | 19013.71 | 10488.77 | 0.00 | 0.00 | 8524.94 |
| 193+00 BK | 19300.00 | 50.00 | 941.02 | 0.00 | 0.00 | 0.00 | 1590.82 | 0.00 | 0.00 | 0.00 | 20604.54 | 10488.77 | 0.00 | 0.00 | 10115.76 |
| | | | | | Column totals | | 20604.54 | 0.00 | 9535.25 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4645
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:28 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew20 PLOT SCALE : 1:1

**Division 2 RAMP WS**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 540+89 AH | 54088.87 | 0.00 | 86.73 | 0.00 | 47.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 541+00 | 54100.00 | 11.13 | 84.62 | 0.00 | 56.89 | 0.00 | 35.32 | 0.00 | 21.44 | 0.00 | 35.32 | 23.59 | 0.00 | 0.00 | 11.73 |
| 541+50 | 54150.00 | 50.00 | 58.94 | 0.00 | 93.13 | 0.00 | 132.93 | 0.00 | 138.91 | 0.00 | 168.24 | 176.38 | 0.00 | 0.00 | -8.14 |
| 542+00 | 54200.00 | 50.00 | 27.12 | 0.00 | 120.19 | 0.00 | 79.69 | 0.00 | 197.52 | 0.00 | 247.93 | 393.65 | 0.00 | 0.00 | -145.73 |
| 542+50 | 54250.00 | 50.00 | 0.00 | 0.00 | 190.94 | 0.00 | 25.11 | 0.00 | 288.08 | 0.00 | 273.04 | 710.55 | 0.00 | 0.00 | -437.51 |
| 543+00 | 54300.00 | 50.00 | 0.08 | 0.00 | 303.20 | 0.00 | 0.07 | 0.00 | 457.54 | 0.00 | 273.11 | 1213.84 | 0.00 | 0.00 | -940.72 |
| 543+50 | 54350.00 | 50.00 | 1.51 | 0.00 | 471.26 | 0.00 | 1.47 | 0.00 | 717.09 | 0.00 | 274.59 | 2002.64 | 0.00 | 0.00 | -1728.05 |
| 544+00 | 54400.00 | 50.00 | 0.88 | 0.00 | 541.31 | 0.00 | 2.21 | 0.00 | 937.56 | 0.00 | 276.80 | 3033.96 | 0.00 | 0.00 | -2757.16 |
| 544+50 | 54450.00 | 50.00 | 6.98 | 0.00 | 584.96 | 0.00 | 7.28 | 0.00 | 1042.84 | 0.00 | 284.08 | 4181.09 | 0.00 | 0.00 | -3897.01 |
| 545+00 | 54500.00 | 50.00 | 17.95 | 0.00 | 528.04 | 0.00 | 23.08 | 0.00 | 1030.56 | 0.00 | 307.16 | 5314.70 | 0.00 | 0.00 | -5007.54 |
| 545+08 | 54507.77 | 7.77 | 20.19 | 0.00 | 356.89 | 0.00 | 5.49 | 0.00 | 127.33 | 0.00 | 312.65 | 5454.76 | 0.00 | 0.00 | -5142.12 |
| 545+08 | 54507.77 | 0.00 | 2.24 | 0.00 | 355.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 312.65 | 5454.76 | 0.00 | 0.00 | -5142.12 |
| 545+50 | 54550.00 | 42.23 | 24.97 | 0.00 | 5.38 | 0.00 | 21.28 | 0.00 | 282.34 | 0.00 | 333.93 | 5765.34 | 0.00 | 0.00 | -5431.41 |
| 546+00 | 54600.00 | 50.00 | 17.99 | 0.00 | 31.68 | 0.00 | 39.78 | 0.00 | 34.31 | 0.00 | 373.70 | 5803.08 | 0.00 | 0.00 | -5429.38 |
| 546+50 | 54650.00 | 50.00 | 18.86 | 0.00 | 151.79 | 0.00 | 34.12 | 0.00 | 169.88 | 0.00 | 407.83 | 5989.95 | 0.00 | 0.00 | -5582.12 |
| 547+00 | 54700.00 | 50.00 | 5.52 | 0.00 | 383.31 | 0.00 | 22.57 | 0.00 | 495.46 | 0.00 | 430.40 | 6534.96 | 0.00 | 0.00 | -6104.56 |
| 547+50 | 54750.00 | 50.00 | 21.04 | 0.00 | 485.36 | 0.00 | 24.59 | 0.00 | 804.32 | 0.00 | 454.99 | 7419.72 | 0.00 | 0.00 | -6964.72 |
| 548+00 | 54800.00 | 50.00 | 48.15 | 0.00 | 465.25 | 0.00 | 64.06 | 0.00 | 880.19 | 0.00 | 519.06 | 8387.93 | 0.00 | 0.00 | -7868.87 |
| 548+50 | 54850.00 | 50.00 | 136.54 | 0.00 | 196.59 | 0.00 | 171.01 | 0.00 | 612.81 | 0.00 | 690.07 | 9062.03 | 0.00 | 0.00 | -8371.96 |
| 549+00 | 54900.00 | 50.00 | 286.65 | 0.00 | 80.53 | 0.00 | 391.84 | 0.00 | 256.59 | 0.00 | 1081.91 | 9344.28 | 0.00 | 0.00 | -8262.37 |
| 549+30 | 54930.42 | 30.42 | 246.15 | 0.00 | 128.98 | 0.00 | 300.14 | 0.00 | 118.02 | 0.00 | 1382.05 | 9474.10 | 0.00 | 0.00 | -8092.05 |
| 549+30 | 54930.42 | 0.00 | 4.30 | 0.00 | 16.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1382.05 | 9474.10 | 0.00 | 0.00 | -8092.05 |
| 549+50 | 54950.00 | 19.58 | 11.36 | 0.00 | 5.51 | 0.00 | 5.68 | 0.00 | 8.11 | 0.00 | 1387.73 | 9483.03 | 0.00 | 0.00 | -8095.30 |
| 549+80 BK | 54980.42 | 30.42 | 31.59 | 0.00 | 0.01 | 0.00 | 24.20 | 0.00 | 3.11 | 0.00 | 1411.93 | 9486.45 | 0.00 | 0.00 | -8074.52 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4646
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 2 RAMP WS**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material | Incremental Vol (CY) (Unadjusted) Fill | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut | Cumulative Vol (CY) Expanded Fill | Cumulative Vol (CY) Expanded EBS Backfill | Cumulative Vol (CY) Reduced EBS In Fill | Mass Ordinate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 1.00 | 1.1 | 1.30 | 0.80 | |
| | | | | | | | Note 1 | Note 2 | Note 3 | | | | Note 4 | Note 5 | Note 6 |
| 550+80 AH | 55080.42 | 0.00 | 0.00 | 0.00 | 267.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 551+00 | 55100.00 | 19.58 | 0.00 | 0.00 | 240.01 | 0.00 | 0.00 | 0.00 | 184.12 | 0.00 | 0.00 | 202.53 | 0.00 | 0.00 | -202.53 |
| 551+50 | 55150.00 | 50.00 | 0.00 | 0.00 | 173.65 | 0.00 | 0.00 | 0.00 | 383.02 | 0.00 | 0.00 | 623.85 | 0.00 | 0.00 | -623.85 |
| 551+80 | 55180.42 | 30.42 | 0.00 | 0.00 | 128.76 | 0.00 | 0.00 | 0.00 | 170.36 | 0.00 | 0.00 | 811.25 | 0.00 | 0.00 | -811.25 |
| 551+80 | 55180.42 | 0.00 | 0.00 | 0.00 | 163.97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 811.25 | 0.00 | 0.00 | -811.25 |
| 552+00 | 55200.00 | 19.58 | 0.00 | 0.00 | 110.49 | 0.00 | 0.00 | 0.00 | 99.52 | 0.00 | 0.00 | 920.72 | 0.00 | 0.00 | -920.72 |
| 552+30 | 55230.42 | 30.42 | 0.00 | 0.00 | 98.40 | 0.00 | 0.00 | 0.00 | 117.67 | 0.00 | 0.00 | 1050.15 | 0.00 | 0.00 | -1050.15 |
| 552+30 | 55230.42 | 0.00 | 5.29 | 0.00 | 111.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1050.15 | 0.00 | 0.00 | -1050.15 |
| 552+50 | 55250.00 | 19.58 | 2.76 | 0.00 | 89.94 | 0.00 | 2.92 | 0.00 | 73.16 | 0.00 | 2.92 | 1130.62 | 0.00 | 0.00 | -1127.70 |
| 553+00 | 55300.00 | 50.00 | 0.78 | 0.00 | 46.81 | 0.00 | 3.28 | 0.00 | 126.62 | 0.00 | 6.20 | 1269.90 | 0.00 | 0.00 | -1263.71 |
| 553+08 | 55307.58 | 7.58 | 0.71 | 0.00 | 40.10 | 0.00 | 0.21 | 0.00 | 12.20 | 0.00 | 6.41 | 1283.32 | 0.00 | 0.00 | -1276.92 |
| 553+08 | 55307.58 | 0.00 | 0.65 | 0.00 | 31.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.41 | 1283.32 | 0.00 | 0.00 | -1276.92 |
| 553+50 | 55350.00 | 42.42 | 1.02 | 0.00 | 29.05 | 0.00 | 1.31 | 0.00 | 47.34 | 0.00 | 7.72 | 1335.40 | 0.00 | 0.00 | -1327.68 |
| 554+00 | 55400.00 | 50.00 | 1.28 | 0.00 | 27.77 | 0.00 | 2.13 | 0.00 | 52.61 | 0.00 | 9.85 | 1393.27 | 0.00 | 0.00 | -1383.42 |
| 554+50 | 55450.00 | 50.00 | 1.36 | 0.00 | 27.31 | 0.00 | 2.44 | 0.00 | 51.00 | 0.00 | 12.29 | 1449.37 | 0.00 | 0.00 | -1437.08 |
| 555+00 | 55500.00 | 50.00 | 1.44 | 0.00 | 26.80 | 0.00 | 2.59 | 0.00 | 50.10 | 0.00 | 14.88 | 1504.48 | 0.00 | 0.00 | -1489.59 |
| 555+46 | 55546.04 | 46.04 | 1.52 | 0.00 | 26.33 | 0.00 | 2.52 | 0.00 | 45.30 | 0.00 | 17.41 | 1554.31 | 0.00 | 0.00 | -1536.90 |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4647
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 2 RAMP WS**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material | Incremental Vol (CY) (Unadjusted) Fill | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut | Cumulative Vol (CY) Expanded Fill | Cumulative Vol (CY) Expanded EBS Backfill | Cumulative Vol (CY) Reduced EBS In Fill | Mass Ordinate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Note 1 | Note 2 | Note 3 | | 1.00 | 1.1 | 1.30 Note 4 | 0.80 Note 5 | Note 6 |
| 555+46 | 55546.04 | 0.00 | 2.43 | 0.00 | 35.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 17.41 | 1554.31 | 0.00 | 0.00 | -1536.90 |
| 555+50 | 55550.00 | 3.96 | 2.22 | 0.00 | 36.15 | 0.00 | 0.34 | 0.00 | 5.27 | 0.00 | 17.75 | 1560.11 | 0.00 | 0.00 | -1542.36 |
| 556+00 | 55600.00 | 50.00 | 1.66 | 0.00 | 38.01 | 0.00 | 3.59 | 0.00 | 68.67 | 0.00 | 21.34 | 1635.64 | 0.00 | 0.00 | -1614.30 |
| 556+10 | 55610.25 | 10.25 | 1.68 | 0.00 | 37.82 | 0.00 | 0.63 | 0.00 | 14.39 | 0.00 | 21.98 | 1651.47 | 0.00 | 0.00 | -1629.50 |
| 556+10 | 55610.25 | 0.00 | 0.04 | 0.00 | 24.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 21.98 | 1651.47 | 0.00 | 0.00 | -1629.50 |
| 556+50 | 55650.00 | 39.75 | 1.74 | 0.00 | 37.02 | 0.00 | 1.31 | 0.00 | 45.34 | 0.00 | 23.29 | 1701.35 | 0.00 | 0.00 | -1678.07 |
| 557+00 | 55700.00 | 50.00 | 1.88 | 0.00 | 36.08 | 0.00 | 3.35 | 0.00 | 67.69 | 0.00 | 26.64 | 1775.81 | 0.00 | 0.00 | -1749.17 |
| 557+50 | 55750.00 | 50.00 | 2.05 | 0.00 | 35.10 | 0.00 | 3.64 | 0.00 | 65.91 | 0.00 | 30.28 | 1848.30 | 0.00 | 0.00 | -1818.03 |
| 558+00 | 55800.00 | 50.00 | 2.24 | 0.00 | 34.11 | 0.00 | 3.97 | 0.00 | 64.08 | 0.00 | 34.25 | 1918.80 | 0.00 | 0.00 | -1884.55 |
| 558+50 | 55850.00 | 50.00 | 2.45 | 0.00 | 33.15 | 0.00 | 4.34 | 0.00 | 62.28 | 0.00 | 38.59 | 1987.30 | 0.00 | 0.00 | -1948.71 |
| 558+60 | 55860.00 | 10.00 | 0.37 | 0.00 | 21.09 | 0.00 | 0.52 | 0.00 | 10.04 | 0.00 | 39.11 | 1998.35 | 0.00 | 0.00 | -1959.24 |
| 558+60 | 55860.00 | 0.00 | 2.48 | 0.00 | 33.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 39.11 | 1998.35 | 0.00 | 0.00 | -1959.24 |
| 559+00 | 55900.00 | 40.00 | 0.00 | 0.00 | 10.84 | 0.00 | 1.84 | 0.00 | 32.48 | 0.00 | 40.95 | 2034.08 | 0.00 | 0.00 | -1993.13 |
| 559+50 | 55950.00 | 50.00 | 0.00 | 0.00 | 10.84 | 0.00 | 0.00 | 0.00 | 20.07 | 0.00 | 40.95 | 2056.16 | 0.00 | 0.00 | -2015.21 |
| 560+00 | 56000.00 | 50.00 | 0.00 | 0.00 | 10.03 | 0.00 | 0.00 | 0.00 | 19.32 | 0.00 | 40.95 | 2077.42 | 0.00 | 0.00 | -2036.47 |
| 560+45 | 56044.51 | 44.51 | 0.00 | 0.00 | 10.68 | 0.00 | 0.00 | 0.00 | 17.07 | 0.00 | 40.95 | 2096.19 | 0.00 | 0.00 | -2055.24 |
| 560+45 | 56044.51 | 0.00 | 0.00 | 0.00 | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 40.95 | 2096.19 | 0.00 | 0.00 | -2055.24 |
| 560+50 | 56050.00 | 5.49 | 0.00 | 0.00 | 9.77 | 0.00 | 0.00 | 0.00 | 1.02 | 0.00 | 40.95 | 2097.31 | 0.00 | 0.00 | -2056.36 |
| 561+00 | 56100.00 | 50.00 | 0.00 | 0.00 | 9.44 | 0.00 | 0.00 | 0.00 | 17.79 | 0.00 | 40.95 | 2116.88 | 0.00 | 0.00 | -2075.93 |
| 561+50 | 56150.00 | 50.00 | 0.00 | 0.00 | 8.81 | 0.00 | 0.00 | 0.00 | 16.90 | 0.00 | 40.95 | 2135.47 | 0.00 | 0.00 | -2094.52 |
| 562+00 | 56200.00 | 50.00 | 0.84 | 0.00 | 0.20 | 0.00 | 0.78 | 0.00 | 8.34 | 0.00 | 41.73 | 2144.64 | 0.00 | 0.00 | -2102.91 |
| 562+31 | 56231.00 | 31.00 | 0.71 | 0.00 | 15.07 | 0.00 | 0.89 | 0.00 | 8.77 | 0.00 | 42.62 | 2154.29 | 0.00 | 0.00 | -2111.67 |
| 562+31 | 56231.00 | 0.00 | 0.01 | 0.00 | 4.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 42.62 | 2154.29 | 0.00 | 0.00 | -2111.67 |
| 562+50 | 56250.00 | 19.00 | 0.09 | 0.00 | 10.46 | 0.00 | 0.04 | 0.00 | 5.29 | 0.00 | 42.65 | 2160.10 | 0.00 | 0.00 | -2117.45 |
| 563+00 | 56300.00 | 50.00 | 0.39 | 0.00 | 56.19 | 0.00 | 0.44 | 0.00 | 61.71 | 0.00 | 43.10 | 2227.99 | 0.00 | 0.00 | -2184.89 |
| 563+50 | 56350.00 | 50.00 | 0.64 | 0.00 | 96.19 | 0.00 | 0.95 | 0.00 | 141.09 | 0.00 | 44.05 | 2383.19 | 0.00 | 0.00 | -2339.14 |

3

1

Addendum No. 03
ID 1060-33-81
Revised Sheet 4648
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 2 RAMP WS**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 564+00 | 56400.00 | 50.00 | 0.87 | 0.00 | 139.77 | 0.00 | 1.40 | 0.00 | 218.48 | 0.00 | 45.45 | 2623.52 | 0.00 | 0.00 | -2578.07 |
| 564+50 | 56450.00 | 50.00 | 1.15 | 0.00 | 193.92 | 0.00 | 1.87 | 0.00 | 308.97 | 0.00 | 47.32 | 2963.39 | 0.00 | 0.00 | -2916.07 |
| 565+00 | 56500.00 | 50.00 | 1.63 | 0.00 | 250.05 | 0.00 | 2.57 | 0.00 | 411.08 | 0.00 | 49.89 | 3415.58 | 0.00 | 0.00 | -3365.69 |
| 565+50 | 56550.00 | 50.00 | 0.85 | 0.00 | 313.12 | 0.00 | 2.30 | 0.00 | 521.45 | 0.00 | 52.19 | 3989.18 | 0.00 | 0.00 | -3936.99 |
| 566+00 | 56600.00 | 50.00 | 1.18 | 0.00 | 353.82 | 0.00 | 1.88 | 0.00 | 617.54 | 0.00 | 54.07 | 4668.47 | 0.00 | 0.00 | -4614.40 |
| 566+11 | 56610.98 | 10.98 | 1.45 | 0.00 | 360.53 | 0.00 | 0.53 | 0.00 | 145.25 | 0.00 | 54.61 | 4828.25 | 0.00 | 0.00 | -4773.64 |
| 566+11 | 56610.98 | 0.00 | 1.45 | 0.00 | 122.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 54.61 | 4828.25 | 0.00 | 0.00 | -4773.64 |
| 566+50 | 56650.00 | 39.02 | 1.20 | 0.00 | 24.02 | 0.00 | 1.91 | 0.00 | 106.19 | 0.00 | 56.52 | 4945.06 | 0.00 | 0.00 | -4888.54 |
| 566+76 | 56675.98 | 25.98 | 1.25 | 0.00 | 44.11 | 0.00 | 1.18 | 0.00 | 32.78 | 0.00 | 57.70 | 4981.11 | 0.00 | 0.00 | -4923.42 |
| 566+98 BK | 56697.73 | 21.75 | 2.01 | 0.00 | 0.00 | 0.00 | 1.31 | 0.00 | 17.77 | 0.00 | 59.01 | 5000.66 | 0.00 | 0.00 | -4941.65 |
| 588+68 AH | 58868.46 | 0.00 | 0.00 | 0.00 | 1.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 589+00 | 58900.00 | 31.54 | 0.00 | 0.00 | 62.75 | 0.00 | 0.00 | 0.00 | 37.74 | 0.00 | 0.00 | 41.51 | 0.00 | 0.00 | -41.51 |
| 589+07 | 58906.53 | 6.53 | 0.00 | 0.00 | 85.45 | 0.00 | 0.00 | 0.00 | 17.92 | 0.00 | 0.00 | 61.22 | 0.00 | 0.00 | -61.22 |
| 589+50 | 58950.00 | 43.47 | 0.00 | 0.00 | 287.10 | 0.00 | 0.00 | 0.00 | 299.90 | 0.00 | 0.00 | 391.12 | 0.00 | 0.00 | -391.12 |
| 590+00 | 59000.00 | 50.00 | 0.00 | 0.00 | 339.89 | 0.00 | 0.00 | 0.00 | 580.55 | 0.00 | 0.00 | 1029.72 | 0.00 | 0.00 | -1029.72 |
| 590+50 | 59050.00 | 50.00 | 0.00 | 0.00 | 303.72 | 0.00 | 0.00 | 0.00 | 595.94 | 0.00 | 0.00 | 1685.25 | 0.00 | 0.00 | -1685.25 |
| 591+00 | 59100.00 | 50.00 | 0.00 | 0.00 | 263.39 | 0.00 | 0.00 | 0.00 | 525.10 | 0.00 | 0.00 | 2262.86 | 0.00 | 0.00 | -2262.86 |
| 591+27 | 59126.91 | 26.91 | 0.00 | 0.00 | 150.50 | 0.00 | 0.00 | 0.00 | 206.26 | 0.00 | 0.00 | 2489.74 | 0.00 | 0.00 | -2489.74 |
| 591+29 | 59128.55 | 1.64 | 0.00 | 0.00 | 167.65 | 0.00 | 0.00 | 0.00 | 9.66 | 0.00 | 0.00 | 2500.37 | 0.00 | 0.00 | -2500.37 |
| 591+47 BK | 59146.83 | 18.28 | 0.00 | 0.00 | 560.90 | 0.00 | 0.00 | 0.00 | 246.63 | 0.00 | 0.00 | 2771.66 | 0.00 | 0.00 | -2771.66 |
| | | | | | | Column totals | 1470.94 | 0.00 | 15689.79 | 0.00 | | | | | |

3

3

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4649
September 14, 2015

**Division 2 RAMP CS**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 571+00 AH | 57100.45 | 0.00 | 0.00 | 0.00 | 9.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 571+50 | 57150.00 | 49.55 | 0.00 | 0.00 | 18.84 | 0.00 | 0.00 | 0.00 | 26.11 | 0.00 | 0.00 | 28.72 | 0.00 | 0.00 | -28.72 |
| 572+00 | 57200.00 | 50.00 | 0.00 | 0.00 | 25.84 | 0.00 | 0.00 | 0.00 | 41.37 | 0.00 | 0.00 | 74.22 | 0.00 | 0.00 | -74.22 |
| 572+50 | 57250.00 | 50.00 | 0.00 | 0.00 | 31.56 | 0.00 | 0.00 | 0.00 | 53.15 | 0.00 | 0.00 | 132.69 | 0.00 | 0.00 | -132.69 |
| 573+00 | 57300.00 | 50.00 | 0.00 | 0.00 | 37.29 | 0.00 | 0.00 | 0.00 | 63.75 | 0.00 | 0.00 | 202.81 | 0.00 | 0.00 | -202.81 |
| 573+22 | 57322.00 | 22.00 | 0.00 | 0.00 | 40.74 | 0.00 | 0.00 | 0.00 | 31.79 | 0.00 | 0.00 | 237.78 | 0.00 | 0.00 | -237.78 |
| 573+22 | 57322.00 | 0.00 | 0.00 | 0.00 | 48.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 237.78 | 0.00 | 0.00 | -237.78 |
| 573+50 | 57350.00 | 28.00 | 0.00 | 0.00 | 53.76 | 0.00 | 0.00 | 0.00 | 53.23 | 0.00 | 0.00 | 296.33 | 0.00 | 0.00 | -296.33 |
| 574+00 | 57400.00 | 50.00 | 0.00 | 0.00 | 64.62 | 0.00 | 0.00 | 0.00 | 109.61 | 0.00 | 0.00 | 416.90 | 0.00 | 0.00 | -416.90 |
| 574+50 | 57450.00 | 50.00 | 0.00 | 0.00 | 77.39 | 0.00 | 0.00 | 0.00 | 131.49 | 0.00 | 0.00 | 561.54 | 0.00 | 0.00 | -561.54 |
| 575+00 BK | 57500.00 | 50.00 | 0.00 | 0.00 | 162.65 | 0.00 | 0.00 | 0.00 | 222.26 | 0.00 | 0.00 | 806.03 | 0.00 | 0.00 | -806.03 |
| | | | | | Column totals | | 0.00 | 0.00 | 732.75 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4650
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:28 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew25 PLOT SCALE : 1:1

**Division 2 RAMP WN**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 598+16 AH | 59816.49 | 0.00 | 0.00 | 0.00 | 764.85 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 598+50 | 59850.00 | 33.51 | 0.00 | 0.00 | 902.31 | 0.00 | 0.00 | 0.00 | 1034.57 | 0.00 | 0.00 | 1138.02 | 0.00 | 0.00 | -1138.02 |
| 599+00 | 59900.00 | 50.00 | 0.00 | 0.00 | 418.48 | 0.00 | 0.00 | 0.00 | 1222.95 | 0.00 | 0.00 | 2483.27 | 0.00 | 0.00 | -2483.27 |
| 599+50 | 59950.00 | 50.00 | 0.00 | 0.00 | 809.43 | 0.00 | 0.00 | 0.00 | 1136.95 | 0.00 | 0.00 | 3733.92 | 0.00 | 0.00 | -3733.92 |
| 600+00 | 60000.00 | 50.00 | 0.00 | 0.00 | 853.48 | 0.00 | 0.00 | 0.00 | 1539.73 | 0.00 | 0.00 | 5427.62 | 0.00 | 0.00 | -5427.62 |
| 600+50 | 60050.00 | 50.00 | 0.00 | 0.00 | 723.15 | 0.00 | 0.00 | 0.00 | 1459.84 | 0.00 | 0.00 | 7033.45 | 0.00 | 0.00 | -7033.45 |
| 601+00 | 60100.00 | 50.00 | 0.00 | 0.00 | 533.30 | 0.00 | 0.00 | 0.00 | 1163.38 | 0.00 | 0.00 | 8313.17 | 0.00 | 0.00 | -8313.17 |
| 601+50 | 60150.00 | 50.00 | 0.00 | 0.00 | 568.96 | 0.00 | 0.00 | 0.00 | 1020.61 | 0.00 | 0.00 | 9435.84 | 0.00 | 0.00 | -9435.84 |
| 602+00 | 60200.00 | 50.00 | 0.00 | 0.00 | 343.59 | 0.00 | 0.00 | 0.00 | 844.95 | 0.00 | 0.00 | 10365.29 | 0.00 | 0.00 | -10365.29 |
| 602+20 | 60220.15 | 20.15 | 0.00 | 0.00 | 300.96 | 0.00 | 0.00 | 0.00 | 240.51 | 0.00 | 0.00 | 10629.85 | 0.00 | 0.00 | -10629.85 |
| 602+50 | 60250.00 | 29.85 | 37.93 | 0.00 | 417.03 | 0.00 | 20.97 | 0.00 | 396.89 | 0.00 | 20.97 | 11066.43 | 0.00 | 0.00 | -11045.47 |
| 602+88 | 60287.52 | 37.52 | 72.57 | 0.00 | 326.32 | 0.00 | 76.78 | 0.00 | 516.49 | 0.00 | 97.74 | 11634.57 | 0.00 | 0.00 | -11536.83 |
| 602+88 | 60287.52 | 0.00 | 72.58 | 0.00 | 378.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 97.74 | 11634.57 | 0.00 | 0.00 | -11536.83 |
| 603+00 | 60300.00 | 12.48 | 77.09 | 0.00 | 352.16 | 0.00 | 34.59 | 0.00 | 168.82 | 0.00 | 132.33 | 11820.27 | 0.00 | 0.00 | -11687.93 |
| 603+50 | 60350.00 | 50.00 | 81.12 | 0.00 | 261.87 | 0.00 | 146.49 | 0.00 | 568.55 | 0.00 | 278.83 | 12445.67 | 0.00 | 0.00 | -12166.84 |
| 604+00 | 60400.00 | 50.00 | 92.00 | 0.00 | 98.23 | 0.00 | 160.30 | 0.00 | 333.43 | 0.00 | 439.12 | 12812.44 | 0.00 | 0.00 | -12373.32 |
| 604+50 | 60450.00 | 50.00 | 170.25 | 0.00 | 1.05 | 0.00 | 242.82 | 0.00 | 91.93 | 0.00 | 681.95 | 12913.56 | 0.00 | 0.00 | -12231.61 |
| 605+00 | 60500.00 | 50.00 | 262.49 | 0.00 | 0.00 | 0.00 | 400.69 | 0.00 | 0.97 | 0.00 | 1082.63 | 12914.63 | 0.00 | 0.00 | -11832.00 |
| 605+50 | 60550.00 | 50.00 | 311.58 | 0.00 | 0.00 | 0.00 | 531.55 | 0.00 | 0.00 | 0.00 | 1614.18 | 12914.63 | 0.00 | 0.00 | -11300.45 |
| 605+61 BK | 60560.78 | 10.78 | 318.02 | 0.00 | 0.00 | 0.00 | 125.69 | 0.00 | 0.00 | 0.00 | 1739.86 | 12914.63 | 0.00 | 0.00 | -11174.76 |
| | | | | | Column totals | | 1739.86 | 0.00 | 11740.57 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4651
September 14, 2015


9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:28 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew26 PLOT SCALE : 1:1

**Division 2 RAMP EN**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 536+02 AH | 53602.26 | 0.00 | 319.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 536+50 | 53650.00 | 47.74 | 448.15 | 0.00 | 0.00 | 0.00 | 678.32 | 0.00 | 0.00 | 0.00 | 678.32 | 0.00 | 0.00 | 0.00 | 678.32 |
| 537+00 | 53700.00 | 50.00 | 499.65 | 0.00 | 0.00 | 0.00 | 877.59 | 0.00 | 0.00 | 0.00 | 1555.92 | 0.00 | 0.00 | 0.00 | 1555.92 |
| 537+50 | 53750.00 | 50.00 | 471.24 | 0.00 | 0.00 | 0.00 | 898.97 | 0.00 | 0.00 | 0.00 | 2454.89 | 0.00 | 0.00 | 0.00 | 2454.89 |
| 538+00 | 53800.00 | 50.00 | 433.96 | 0.00 | 0.00 | 0.00 | 838.15 | 0.00 | 0.00 | 0.00 | 3293.04 | 0.00 | 0.00 | 0.00 | 3293.04 |
| 538+50 | 53850.00 | 50.00 | 413.42 | 0.00 | 0.00 | 0.00 | 784.61 | 0.00 | 0.00 | 0.00 | 4077.65 | 0.00 | 0.00 | 0.00 | 4077.65 |
| 538+65 BK | 53864.81 | 14.81 | 415.11 | 0.00 | 0.00 | 0.00 | 227.23 | 0.00 | 0.00 | 0.00 | 4304.88 | 0.00 | 0.00 | 0.00 | 4304.88 |
| | | | | | Column totals | | 4304.88 | 0.00 | 0.00 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4652
September 14, 2015

**Division 2 RAMP LA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 703+32 AH | 70331.94 | 0.00 | 172.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 703+50 | 70350.00 | 18.06 | 175.63 | 0.00 | 1.97 | 0.00 | 116.30 | 0.00 | 0.66 | 0.00 | 116.30 | 0.72 | 0.00 | 0.00 | 115.57 |
| 704+00 | 70400.00 | 50.00 | 84.27 | 0.00 | 45.78 | 0.00 | 240.65 | 0.00 | 44.21 | 0.00 | 356.95 | 49.36 | 0.00 | 0.00 | 307.59 |
| 704+50 | 70450.00 | 50.00 | 53.22 | 0.00 | 53.25 | 0.00 | 127.31 | 0.00 | 91.69 | 0.00 | 484.25 | 150.22 | 0.00 | 0.00 | 334.03 |
| 705+00 | 70500.00 | 50.00 | 13.98 | 0.00 | 93.42 | 0.00 | 62.22 | 0.00 | 135.81 | 0.00 | 546.48 | 299.61 | 0.00 | 0.00 | 246.87 |
| 705+50 | 70550.00 | 50.00 | 5.62 | 0.00 | 175.49 | 0.00 | 18.15 | 0.00 | 248.99 | 0.00 | 564.62 | 573.50 | 0.00 | 0.00 | -8.88 |
| 706+00 | 70600.00 | 50.00 | 4.97 | 0.00 | 254.30 | 0.00 | 9.81 | 0.00 | 397.95 | 0.00 | 574.43 | 1011.25 | 0.00 | 0.00 | -436.82 |
| 706+50 | 70650.00 | 50.00 | 1.64 | 0.00 | 322.69 | 0.00 | 6.12 | 0.00 | 534.25 | 0.00 | 580.55 | 1598.92 | 0.00 | 0.00 | -1018.37 |
| 707+00 | 70700.00 | 50.00 | 2.62 | 0.00 | 547.34 | 0.00 | 3.94 | 0.00 | 805.58 | 0.00 | 584.49 | 2485.06 | 0.00 | 0.00 | -1900.57 |
| 707+50 | 70750.00 | 50.00 | 3.47 | 0.00 | 479.43 | 0.00 | 5.64 | 0.00 | 950.71 | 0.00 | 590.13 | 3530.85 | 0.00 | 0.00 | -2940.72 |
| 708+00 | 70800.00 | 50.00 | 3.04 | 0.00 | 350.79 | 0.00 | 6.03 | 0.00 | 768.72 | 0.00 | 596.16 | 4376.44 | 0.00 | 0.00 | -3780.28 |
| 708+50 | 70850.00 | 50.00 | 0.66 | 0.00 | 210.02 | 0.00 | 3.43 | 0.00 | 519.27 | 0.00 | 599.59 | 4947.64 | 0.00 | 0.00 | -4348.05 |
| 709+00 | 70900.00 | 50.00 | 1.03 | 0.00 | 134.08 | 0.00 | 1.56 | 0.00 | 318.61 | 0.00 | 601.15 | 5298.11 | 0.00 | 0.00 | -4696.96 |
| 709+50 | 70950.00 | 50.00 | 19.61 | 0.00 | 42.95 | 0.00 | 19.11 | 0.00 | 163.92 | 0.00 | 620.26 | 5478.42 | 0.00 | 0.00 | -4858.16 |
| 710+00 | 71000.00 | 50.00 | 101.09 | 0.00 | 29.32 | 0.00 | 111.76 | 0.00 | 66.92 | 0.00 | 732.02 | 5552.03 | 0.00 | 0.00 | -4820.01 |
| 710+50 | 71050.00 | 50.00 | 255.67 | 0.00 | 27.35 | 0.00 | 330.33 | 0.00 | 52.47 | 0.00 | 1062.36 | 5609.75 | 0.00 | 0.00 | -4547.39 |
| 711+00 | 71100.00 | 50.00 | 296.85 | 0.00 | 19.25 | 0.00 | 511.59 | 0.00 | 43.15 | 0.00 | 1573.95 | 5657.21 | 0.00 | 0.00 | -4083.26 |
| 711+50 | 71150.00 | 50.00 | 338.65 | 0.00 | 19.07 | 0.00 | 588.43 | 0.00 | 35.48 | 0.00 | 2162.37 | 5696.24 | 0.00 | 0.00 | -3533.87 |
| 712+00 | 71200.00 | 50.00 | 394.73 | 0.00 | 13.00 | 0.00 | 679.06 | 0.00 | 29.69 | 0.00 | 2841.43 | 5728.90 | 0.00 | 0.00 | -2887.47 |
| 712+50 | 71250.00 | 50.00 | 429.47 | 0.00 | 5.84 | 0.00 | 763.15 | 0.00 | 17.44 | 0.00 | 3604.58 | 5748.09 | 0.00 | 0.00 | -2143.51 |
| 713+00 | 71300.00 | 50.00 | 504.28 | 0.00 | 2.58 | 0.00 | 864.58 | 0.00 | 7.80 | 0.00 | 4469.16 | 5756.67 | 0.00 | 0.00 | -1287.51 |
| 713+50 | 71350.00 | 50.00 | 497.65 | 0.00 | 0.00 | 0.00 | 927.71 | 0.00 | 2.39 | 0.00 | 5396.87 | 5759.30 | 0.00 | 0.00 | -362.42 |
| 714+00 | 71400.00 | 50.00 | 475.87 | 0.00 | 0.23 | 0.00 | 901.41 | 0.00 | 0.21 | 0.00 | 6298.28 | 5759.53 | 0.00 | 0.00 | 538.75 |
| 714+45 | 71445.00 | 45.00 | 422.01 | 0.00 | 0.16 | 0.00 | 748.23 | 0.00 | 0.33 | 0.00 | 7046.51 | 5759.89 | 0.00 | 0.00 | 1286.63 |

3 1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4653
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 2 RAMP LA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 714+45 | 71445.00 | 0.00 | 469.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7046.51 | 5759.89 | 0.00 | 0.00 | 1286.63 |
| 714+50 | 71450.00 | 5.00 | 463.75 | 0.00 | 0.00 | 0.00 | 86.40 | 0.00 | 0.00 | 0.00 | 7132.92 | 5759.89 | 0.00 | 0.00 | 1373.03 |
| 715+00 | 71500.00 | 50.00 | 419.76 | 0.00 | 0.00 | 0.00 | 818.06 | 0.00 | 0.00 | 0.00 | 7950.98 | 5759.89 | 0.00 | 0.00 | 2191.10 |
| 715+50 | 71550.00 | 50.00 | 300.85 | 0.00 | 0.00 | 0.00 | 667.23 | 0.00 | 0.00 | 0.00 | 8618.21 | 5759.89 | 0.00 | 0.00 | 2858.33 |
| 716+00 | 71600.00 | 50.00 | 203.08 | 0.00 | 0.00 | 0.00 | 466.60 | 0.00 | 0.00 | 0.00 | 9084.82 | 5759.89 | 0.00 | 0.00 | 3324.93 |
| 716+50 | 71650.00 | 50.00 | 127.78 | 0.00 | 0.00 | 0.00 | 306.35 | 0.00 | 0.00 | 0.00 | 9391.17 | 5759.89 | 0.00 | 0.00 | 3631.28 |
| 717+00 | 71700.00 | 50.00 | 63.84 | 0.00 | 2.05 | 0.00 | 177.43 | 0.00 | 1.90 | 0.00 | 9568.59 | 5761.98 | 0.00 | 0.00 | 3806.62 |
| 717+50 | 71750.00 | 50.00 | 12.07 | 0.00 | 22.78 | 0.00 | 70.29 | 0.00 | 22.99 | 0.00 | 9638.88 | 5787.27 | 0.00 | 0.00 | 3851.62 |
| 717+90 BK | 71790.34 | 40.34 | 0.00 | 0.00 | 70.63 | 0.00 | 9.02 | 0.00 | 69.78 | 0.00 | 9647.90 | 5864.02 | 0.00 | 0.00 | 3783.87 |
| | | | | | | Column totals | 9647.90 | 0.00 | 5330.93 | 0.00 | | | | | |

3

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4654
September 14, 2015



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:28 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew29 PLOT SCALE : 1:1

**Division 2 RAMP GA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 755+64 AH | 75564.01 | 0.00 | 115.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 756+00 | 75600.00 | 35.99 | 127.92 | 0.00 | 1.85 | 0.00 | 162.25 | 0.00 | 1.23 | 0.00 | 162.25 | 1.36 | 0.00 | 0.00 | 160.89 |
| 756+50 | 75650.00 | 50.00 | 137.64 | 0.00 | 8.31 | 0.00 | 245.89 | 0.00 | 9.41 | 0.00 | 408.14 | 11.70 | 0.00 | 0.00 | 396.43 |
| 757+00 | 75700.00 | 50.00 | 132.70 | 0.00 | 7.98 | 0.00 | 250.31 | 0.00 | 15.08 | 0.00 | 658.45 | 28.30 | 0.00 | 0.00 | 630.16 |
| 757+50 | 75750.00 | 50.00 | 144.48 | 0.00 | 10.45 | 0.00 | 256.65 | 0.00 | 17.06 | 0.00 | 915.10 | 47.07 | 0.00 | 0.00 | 868.03 |
| 758+00 | 75800.00 | 50.00 | 167.53 | 0.00 | 13.19 | 0.00 | 288.90 | 0.00 | 21.89 | 0.00 | 1204.00 | 71.15 | 0.00 | 0.00 | 1132.85 |
| 758+50 | 75850.00 | 50.00 | 148.55 | 0.00 | 10.47 | 0.00 | 292.67 | 0.00 | 21.91 | 0.00 | 1496.66 | 95.24 | 0.00 | 0.00 | 1401.42 |
| 759+00 | 75900.00 | 50.00 | 193.44 | 0.00 | 12.83 | 0.00 | 316.66 | 0.00 | 21.57 | 0.00 | 1813.32 | 118.97 | 0.00 | 0.00 | 1694.35 |
| 759+50 | 75950.00 | 50.00 | 174.14 | 0.00 | 16.25 | 0.00 | 340.35 | 0.00 | 26.93 | 0.00 | 2153.67 | 148.59 | 0.00 | 0.00 | 2005.08 |
| 760+00 | 76000.00 | 50.00 | 95.61 | 0.00 | 19.29 | 0.00 | 249.77 | 0.00 | 32.91 | 0.00 | 2403.44 | 184.79 | 0.00 | 0.00 | 2218.65 |
| 760+50 | 76050.00 | 50.00 | 67.31 | 0.00 | 14.97 | 0.00 | 150.85 | 0.00 | 31.72 | 0.00 | 2554.29 | 219.69 | 0.00 | 0.00 | 2334.61 |
| 761+00 | 76100.00 | 50.00 | 42.31 | 0.00 | 6.42 | 0.00 | 101.50 | 0.00 | 19.81 | 0.00 | 2655.79 | 241.47 | 0.00 | 0.00 | 2414.32 |
| 761+00 | 76100.00 | 0.00 | 42.83 | 0.00 | 6.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2655.79 | 241.47 | 0.00 | 0.00 | 2414.32 |
| 761+50 | 76150.00 | 50.00 | 56.55 | 0.00 | 13.69 | 0.00 | 92.02 | 0.00 | 18.67 | 0.00 | 2747.81 | 262.01 | 0.00 | 0.00 | 2485.81 |
| 762+00 | 76200.00 | 50.00 | 10.10 | 0.00 | 0.00 | 0.00 | 61.71 | 0.00 | 12.68 | 0.00 | 2809.53 | 275.95 | 0.00 | 0.00 | 2533.58 |
| 762+38 BK | 76237.74 | 37.74 | 17.29 | 0.00 | 0.00 | 0.00 | 19.14 | 0.00 | 0.00 | 0.00 | 2828.67 | 275.95 | 0.00 | 0.00 | 2552.72 |
| | | | | | Column totals | | 2828.67 | 0.00 | 250.86 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4655
September 14, 2015


9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:28 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew30 PLOT SCALE : 1:1

**Division 2 RAMP GB**

| STATION | Real Station | Distance | AREA (SF) | | | | Incremental Vol (CY) (Unadjusted) | | | | Cumulative Vol (CY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Expanded Fill | Expanded EBS Backfill | Reduced EBS In Fill | Mass Ordinate |
| | | | | | | | | | | | 1.0 | 1.1 | 1.3 | 0.8 | |
| | | | | | | | Note 1 | Note 2 | Note 3 | | | | Note 4 | Note 5 | Note 6 |
| 740+36 AH | 74036.31 | 0.00 | 142.55 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 740+50 | 74050.00 | 13.69 | 177.51 | 0.00 | 0.00 | 0.00 | 81.14 | 0.00 | 0.00 | 0.00 | 81.14 | 0.00 | 0.00 | 0.00 | 81.14 |
| 741+00 | 74100.00 | 50.00 | 337.76 | 0.00 | 0.00 | 0.00 | 477.10 | 0.00 | 0.00 | 0.00 | 558.24 | 0.00 | 0.00 | 0.00 | 558.24 |
| 741+50 | 74150.00 | 50.00 | 514.09 | 0.00 | 0.00 | 0.00 | 788.75 | 0.00 | 0.00 | 0.00 | 1346.99 | 0.00 | 0.00 | 0.00 | 1346.99 |
| 742+00 | 74200.00 | 50.00 | 693.84 | 0.00 | 0.00 | 0.00 | 1118.45 | 0.00 | 0.00 | 0.00 | 2465.45 | 0.00 | 0.00 | 0.00 | 2465.45 |
| 742+34 | 74234.15 | 34.15 | 800.81 | 0.00 | 0.00 | 0.00 | 945.23 | 0.00 | 0.00 | 0.00 | 3410.67 | 0.00 | 0.00 | 0.00 | 3410.67 |
| 742+34 | 74234.15 | 0.00 | 705.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3410.67 | 0.00 | 0.00 | 0.00 | 3410.67 |
| 742+50 | 74250.00 | 15.85 | 741.72 | 0.00 | 0.00 | 0.00 | 424.80 | 0.00 | 0.00 | 0.00 | 3835.47 | 0.00 | 0.00 | 0.00 | 3835.47 |
| 743+00 | 74300.00 | 50.00 | 834.35 | 0.00 | 0.00 | 0.00 | 1459.32 | 0.00 | 0.00 | 0.00 | 5294.80 | 0.00 | 0.00 | 0.00 | 5294.80 |
| 743+50 | 74350.00 | 50.00 | 738.03 | 0.00 | 6.60 | 0.00 | 1455.91 | 0.00 | 6.11 | 0.00 | 6750.70 | 6.72 | 0.00 | 0.00 | 6743.98 |
| 744+00 | 74400.00 | 50.00 | 453.42 | 0.00 | 12.96 | 0.00 | 1103.19 | 0.00 | 18.11 | 0.00 | 7853.90 | 26.64 | 0.00 | 0.00 | 7827.25 |
| 744+50 | 74450.00 | 50.00 | 51.34 | 0.00 | 13.11 | 0.00 | 467.37 | 0.00 | 24.14 | 0.00 | 8321.27 | 53.20 | 0.00 | 0.00 | 8268.07 |
| 745+00 | 74500.00 | 50.00 | 72.19 | 0.00 | 4.86 | 0.00 | 114.38 | 0.00 | 16.64 | 0.00 | 8435.65 | 71.50 | 0.00 | 0.00 | 8364.15 |
| 745+50 | 74550.00 | 50.00 | 74.64 | 0.00 | 4.04 | 0.00 | 135.95 | 0.00 | 8.24 | 0.00 | 8571.60 | 80.56 | 0.00 | 0.00 | 8491.04 |
| 746+00 | 74600.00 | 50.00 | 61.39 | 0.00 | 36.89 | 0.00 | 125.95 | 0.00 | 37.90 | 0.00 | 8697.56 | 122.25 | 0.00 | 0.00 | 8575.30 |
| 746+50 | 74650.00 | 50.00 | 121.42 | 0.00 | 38.84 | 0.00 | 169.27 | 0.00 | 70.12 | 0.00 | 8866.82 | 199.39 | 0.00 | 0.00 | 8667.44 |
| 747+00 | 74700.00 | 50.00 | 218.55 | 0.00 | 12.22 | 0.00 | 314.79 | 0.00 | 47.28 | 0.00 | 9181.61 | 251.39 | 0.00 | 0.00 | 8930.22 |
| 747+50 | 74750.00 | 50.00 | 423.03 | 0.00 | 0.00 | 0.00 | 594.06 | 0.00 | 11.31 | 0.00 | 9775.67 | 263.84 | 0.00 | 0.00 | 9511.83 |
| 748+00 | 74800.00 | 50.00 | 394.34 | 0.00 | 0.00 | 0.00 | 756.82 | 0.00 | 0.00 | 0.00 | 10532.49 | 263.84 | 0.00 | 0.00 | 10268.65 |
| 748+50 | 74850.00 | 50.00 | 260.43 | 0.00 | 6.00 | 0.00 | 606.27 | 0.00 | 5.56 | 0.00 | 11138.76 | 269.95 | 0.00 | 0.00 | 10868.81 |
| 749+00 | 74900.00 | 50.00 | 232.94 | 0.00 | 4.41 | 0.00 | 456.82 | 0.00 | 9.64 | 0.00 | 11595.58 | 280.55 | 0.00 | 0.00 | 11315.03 |
| 749+50 | 74950.00 | 50.00 | 178.94 | 0.00 | 8.87 | 0.00 | 381.37 | 0.00 | 12.30 | 0.00 | 11976.95 | 294.08 | 0.00 | 0.00 | 11682.88 |
| 750+00 | 75000.00 | 50.00 | 140.91 | 0.00 | 17.20 | 0.00 | 296.16 | 0.00 | 24.14 | 0.00 | 12273.11 | 320.63 | 0.00 | 0.00 | 11952.48 |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4656
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 2 RAMP GB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill Note 4 1.3 | Cumulative Vol (CY) Reduced EBS In Fill Note 5 0.8 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 750+50 | 75050.00 | 50.00 | 186.65 | 0.00 | 0.00 | 0.00 | 303.30 | 0.00 | 15.93 | 0.00 | 12576.41 | 338.15 | 0.00 | 0.00 | 12238.26 |
| 751+00 | 75100.00 | 50.00 | 176.66 | 0.00 | 0.02 | 0.00 | 336.40 | 0.00 | 0.02 | 0.00 | 12912.81 | 338.17 | 0.00 | 0.00 | 12574.64 |
| 751+50 | 75150.00 | 50.00 | 135.13 | 0.00 | 0.32 | 0.00 | 288.69 | 0.00 | 0.31 | 0.00 | 13201.50 | 338.51 | 0.00 | 0.00 | 12862.98 |
| 752+00 | 75200.00 | 50.00 | 120.42 | 0.00 | 7.28 | 0.00 | 236.62 | 0.00 | 7.04 | 0.00 | 13438.12 | 346.26 | 0.00 | 0.00 | 13091.86 |
| 752+03 BK | 75203.28 | 3.28 | 123.30 | 0.00 | 3.58 | 0.00 | 14.80 | 0.00 | 0.66 | 0.00 | 13452.92 | 346.98 | 0.00 | 0.00 | 13105.94 |
| | | | | | Column totals | | 13452.92 | 0.00 | 315.44 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4657
September 14, 2015

**Division 2 RAMP GE**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 761+86 AH | 76185.67 | 0.00 | 55.67 | 0.00 | 13.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 762+00 | 76200.00 | 14.33 | 64.00 | 0.00 | 20.91 | 0.00 | 31.76 | 0.00 | 9.25 | 0.00 | 31.76 | 10.17 | 0.00 | 0.00 | 21.58 |
| 762+50 | 76250.00 | 50.00 | 66.82 | 0.00 | 15.60 | 0.00 | 121.13 | 0.00 | 33.81 | 0.00 | 152.89 | 47.36 | 0.00 | 0.00 | 105.53 |
| 763+00 | 76300.00 | 50.00 | 70.96 | 0.00 | 0.00 | 0.00 | 127.57 | 0.00 | 14.44 | 0.00 | 280.46 | 63.25 | 0.00 | 0.00 | 217.21 |
| 763+50 | 76350.00 | 50.00 | 75.40 | 0.00 | 0.00 | 0.00 | 135.52 | 0.00 | 0.00 | 0.00 | 415.98 | 63.25 | 0.00 | 0.00 | 352.73 |
| 764+00 | 76400.00 | 50.00 | 91.59 | 0.00 | 0.00 | 0.00 | 154.62 | 0.00 | 0.00 | 0.00 | 570.60 | 63.25 | 0.00 | 0.00 | 507.35 |
| 764+34 | 76434.00 | 34.00 | 108.45 | 0.00 | 0.00 | 0.00 | 125.95 | 0.00 | 0.00 | 0.00 | 696.55 | 63.25 | 0.00 | 0.00 | 633.30 |
| 764+34 | 76434.00 | 0.00 | 125.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 696.55 | 63.25 | 0.00 | 0.00 | 633.30 |
| 764+50 | 76450.00 | 16.00 | 122.04 | 0.00 | 0.00 | 0.00 | 73.21 | 0.00 | 0.00 | 0.00 | 769.76 | 63.25 | 0.00 | 0.00 | 706.51 |
| 765+00 | 76500.00 | 50.00 | 110.73 | 0.00 | 0.00 | 0.00 | 215.53 | 0.00 | 0.00 | 0.00 | 985.29 | 63.25 | 0.00 | 0.00 | 922.04 |
| 765+50 | 76550.00 | 50.00 | 79.30 | 0.00 | 0.00 | 0.00 | 175.95 | 0.00 | 0.00 | 0.00 | 1161.24 | 63.25 | 0.00 | 0.00 | 1098.00 |
| 766+00 | 76600.00 | 50.00 | 71.98 | 0.00 | 0.00 | 0.00 | 140.07 | 0.00 | 0.00 | 0.00 | 1301.32 | 63.25 | 0.00 | 0.00 | 1238.07 |
| 766+50 | 76650.00 | 50.00 | 67.10 | 0.00 | 0.00 | 0.00 | 128.78 | 0.00 | 0.00 | 0.00 | 1430.10 | 63.25 | 0.00 | 0.00 | 1366.85 |
| 767+00 | 76700.00 | 50.00 | 59.35 | 0.00 | 0.00 | 0.00 | 117.08 | 0.00 | 0.00 | 0.00 | 1547.18 | 63.25 | 0.00 | 0.00 | 1483.93 |
| 767+50 | 76750.00 | 50.00 | 51.47 | 0.00 | 0.01 | 0.00 | 102.61 | 0.00 | 0.01 | 0.00 | 1649.79 | 63.26 | 0.00 | 0.00 | 1586.53 |
| 768+00 | 76800.00 | 50.00 | 30.49 | 0.00 | 0.03 | 0.00 | 75.89 | 0.00 | 0.04 | 0.00 | 1725.68 | 63.30 | 0.00 | 0.00 | 1662.38 |
| 768+50 | 76850.00 | 50.00 | 9.16 | 0.00 | 2.30 | 0.00 | 36.71 | 0.00 | 2.16 | 0.00 | 1762.39 | 65.67 | 0.00 | 0.00 | 1696.72 |
| 769+00 | 76900.00 | 50.00 | 2.03 | 0.00 | 4.56 | 0.00 | 10.36 | 0.00 | 6.35 | 0.00 | 1772.75 | 72.66 | 0.00 | 0.00 | 1700.09 |
| 769+45 BK | 76945.00 | 45.00 | 0.05 | 0.00 | 7.67 | 0.00 | 1.73 | 0.00 | 10.19 | 0.00 | 1774.49 | 83.87 | 0.00 | 0.00 | 1690.62 |
| | | | | | | Column totals | 1774.49 | 0.00 | 76.25 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4658
September 14, 2015

**Division 2 BB TUNNEL**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 804+60 AH | 80460.00 | 0.00 | 0.00 | 0.00 | 549.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 805+00 | 80500.00 | 40.00 | 0.00 | 0.00 | 614.00 | 0.00 | 0.00 | 0.00 | 861.48 | 0.00 | 0.00 | 947.63 | 0.00 | 0.00 | -947.63 |
| 805+50 | 80550.00 | 50.00 | 0.00 | 0.00 | 607.00 | 0.00 | 0.00 | 0.00 | 1130.56 | 0.00 | 0.00 | 2191.24 | 0.00 | 0.00 | -2191.24 |
| 806+00 | 80600.00 | 50.00 | 0.00 | 0.00 | 561.00 | 0.00 | 0.00 | 0.00 | 1081.48 | 0.00 | 0.00 | 3380.87 | 0.00 | 0.00 | -3380.87 |
| 806+50 | 80650.00 | 50.00 | 0.00 | 0.00 | 567.00 | 0.00 | 0.00 | 0.00 | 1044.44 | 0.00 | 0.00 | 4529.76 | 0.00 | 0.00 | -4529.76 |
| 806+95 BK | 80695.00 | 45.00 | 0.00 | 0.00 | 594.00 | 0.00 | 0.00 | 0.00 | 967.50 | 0.00 | 0.00 | 5594.01 | 0.00 | 0.00 | -5594.01 |
| | | | | | Column totals | | 0.00 | 0.00 | 5085.46 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4659
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:29 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew34 PLOT SCALE : 1:1

**Division 2 RAMP SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 548+70 AH | 54870.34 | 0.00 | 66.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 549+00 | 54900.00 | 29.66 | 0.04 | 0.00 | 53.86 | 0.00 | 36.72 | 0.00 | 29.58 | 0.00 | 36.72 | 32.54 | 0.00 | 0.00 | 4.18 |
| 549+50 | 54950.00 | 50.00 | 0.00 | 0.00 | 83.53 | 0.00 | 0.04 | 0.00 | 127.21 | 0.00 | 36.76 | 172.48 | 0.00 | 0.00 | -135.72 |
| 550+00 | 55000.00 | 50.00 | 0.00 | 0.00 | 128.04 | 0.00 | 0.00 | 0.00 | 195.90 | 0.00 | 36.76 | 387.96 | 0.00 | 0.00 | -351.21 |
| 550+50 | 55050.00 | 50.00 | 0.00 | 0.00 | 97.77 | 0.00 | 0.00 | 0.00 | 209.08 | 0.00 | 36.76 | 617.96 | 0.00 | 0.00 | -581.20 |
| 551+00 | 55100.00 | 50.00 | 1.06 | 0.00 | 67.42 | 0.00 | 0.98 | 0.00 | 152.95 | 0.00 | 37.74 | 786.20 | 0.00 | 0.00 | -748.47 |
| 551+09 | 55109.05 | 9.05 | 1.64 | 0.00 | 62.97 | 0.00 | 0.45 | 0.00 | 21.85 | 0.00 | 38.19 | 810.24 | 0.00 | 0.00 | -772.05 |
| 551+09 | 55109.05 | 0.00 | 1.71 | 0.00 | 38.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 38.19 | 810.24 | 0.00 | 0.00 | -772.05 |
| 551+50 | 55150.00 | 40.95 | 4.98 | 0.00 | 32.77 | 0.00 | 5.07 | 0.00 | 53.67 | 0.00 | 43.26 | 869.28 | 0.00 | 0.00 | -826.02 |
| 552+00 | 55200.00 | 50.00 | 6.74 | 0.00 | 32.59 | 0.00 | 10.85 | 0.00 | 60.52 | 0.00 | 54.11 | 935.85 | 0.00 | 0.00 | -881.74 |
| 552+50 | 55250.00 | 50.00 | 5.70 | 0.00 | 41.12 | 0.00 | 11.52 | 0.00 | 68.25 | 0.00 | 65.63 | 1010.93 | 0.00 | 0.00 | -945.30 |
| 553+00 | 55300.00 | 50.00 | 10.70 | 0.00 | 39.87 | 0.00 | 15.19 | 0.00 | 74.99 | 0.00 | 80.82 | 1093.42 | 0.00 | 0.00 | -1012.60 |
| 553+50 | 55350.00 | 50.00 | 14.95 | 0.00 | 40.91 | 0.00 | 23.75 | 0.00 | 74.80 | 0.00 | 104.57 | 1175.70 | 0.00 | 0.00 | -1071.13 |
| 554+00 | 55400.00 | 50.00 | 17.09 | 0.00 | 43.24 | 0.00 | 29.67 | 0.00 | 77.92 | 0.00 | 134.23 | 1261.40 | 0.00 | 0.00 | -1127.17 |
| 554+50 | 55450.00 | 50.00 | 27.40 | 0.00 | 44.47 | 0.00 | 41.19 | 0.00 | 81.21 | 0.00 | 175.43 | 1350.74 | 0.00 | 0.00 | -1175.31 |
| 555+00 | 55500.00 | 50.00 | 23.14 | 0.00 | 49.62 | 0.00 | 46.80 | 0.00 | 87.12 | 0.00 | 222.23 | 1446.57 | 0.00 | 0.00 | -1224.35 |
| 555+50 | 55550.00 | 50.00 | 22.11 | 0.00 | 50.38 | 0.00 | 41.90 | 0.00 | 92.59 | 0.00 | 264.12 | 1548.42 | 0.00 | 0.00 | -1284.30 |
| 556+00 | 55600.00 | 50.00 | 22.35 | 0.00 | 39.53 | 0.00 | 41.17 | 0.00 | 83.25 | 0.00 | 305.29 | 1640.00 | 0.00 | 0.00 | -1334.71 |
| 556+50 | 55650.00 | 50.00 | 22.47 | 0.00 | 32.87 | 0.00 | 41.50 | 0.00 | 67.04 | 0.00 | 346.79 | 1713.74 | 0.00 | 0.00 | -1366.95 |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4660
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 2 RAMP SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 557+00 | 55700.00 | 50.00 | 22.13 | 0.00 | 33.70 | 0.00 | 41.30 | 0.00 | 61.64 | 0.00 | 388.09 | 1781.54 | 0.00 | 0.00 | -1393.45 |
| 557+50 | 55750.00 | 50.00 | 22.34 | 0.00 | 34.48 | 0.00 | 41.18 | 0.00 | 63.13 | 0.00 | 429.26 | 1850.98 | 0.00 | 0.00 | -1421.72 |
| 558+00 | 55800.00 | 50.00 | 0.18 | 0.00 | 54.57 | 0.00 | 20.85 | 0.00 | 82.45 | 0.00 | 450.11 | 1941.68 | 0.00 | 0.00 | -1491.57 |
| 558+50 | 55850.00 | 50.00 | 0.28 | 0.00 | 31.79 | 0.00 | 0.43 | 0.00 | 79.96 | 0.00 | 450.54 | 2029.64 | 0.00 | 0.00 | -1579.10 |
| 559+00 | 55900.00 | 50.00 | 0.09 | 0.00 | 31.74 | 0.00 | 0.34 | 0.00 | 58.82 | 0.00 | 450.88 | 2094.35 | 0.00 | 0.00 | -1643.47 |
| 559+50 | 55950.00 | 50.00 | 0.09 | 0.00 | 26.34 | 0.00 | 0.17 | 0.00 | 53.78 | 0.00 | 451.05 | 2153.50 | 0.00 | 0.00 | -1702.45 |
| 560+00 | 56000.00 | 50.00 | 0.10 | 0.00 | 24.42 | 0.00 | 0.18 | 0.00 | 47.00 | 0.00 | 451.23 | 2205.20 | 0.00 | 0.00 | -1753.98 |
| 560+50 | 56050.00 | 50.00 | 0.10 | 0.00 | 22.73 | 0.00 | 0.19 | 0.00 | 43.66 | 0.00 | 451.41 | 2253.23 | 0.00 | 0.00 | -1801.82 |
| 561+00 | 56100.00 | 50.00 | 3.12 | 0.00 | 22.76 | 0.00 | 2.98 | 0.00 | 42.12 | 0.00 | 454.39 | 2299.56 | 0.00 | 0.00 | -1845.17 |
| 561+50 | 56150.00 | 50.00 | 5.68 | 0.00 | 18.90 | 0.00 | 8.15 | 0.00 | 38.57 | 0.00 | 462.54 | 2341.99 | 0.00 | 0.00 | -1879.45 |
| 562+00 | 56200.00 | 50.00 | 0.16 | 0.00 | 85.24 | 0.00 | 5.41 | 0.00 | 96.43 | 0.00 | 467.95 | 2448.06 | 0.00 | 0.00 | -1980.11 |
| 562+50 | 56250.00 | 50.00 | 0.10 | 0.00 | 34.15 | 0.00 | 0.24 | 0.00 | 110.55 | 0.00 | 468.19 | 2569.66 | 0.00 | 0.00 | -2101.47 |
| 563+00 | 56300.00 | 50.00 | 0.00 | 0.00 | 33.58 | 0.00 | 0.09 | 0.00 | 62.71 | 0.00 | 468.28 | 2638.64 | 0.00 | 0.00 | -2170.36 |
| 563+50 | 56350.00 | 50.00 | 0.10 | 0.00 | 36.06 | 0.00 | 0.09 | 0.00 | 64.48 | 0.00 | 468.37 | 2709.57 | 0.00 | 0.00 | -2241.20 |
| 564+00 | 56400.00 | 50.00 | 0.10 | 0.00 | 40.89 | 0.00 | 0.19 | 0.00 | 71.25 | 0.00 | 468.56 | 2787.95 | 0.00 | 0.00 | -2319.39 |
| 564+50 | 56450.00 | 50.00 | 0.11 | 0.00 | 48.78 | 0.00 | 0.19 | 0.00 | 83.03 | 0.00 | 468.75 | 2879.28 | 0.00 | 0.00 | -2410.53 |
| 565+00 | 56500.00 | 50.00 | 0.13 | 0.00 | 8.95 | 0.00 | 0.22 | 0.00 | 53.45 | 0.00 | 468.98 | 2938.08 | 0.00 | 0.00 | -2469.10 |
| 565+50 | 56550.00 | 50.00 | 0.14 | 0.00 | 7.69 | 0.00 | 0.25 | 0.00 | 15.41 | 0.00 | 469.23 | 2955.03 | 0.00 | 0.00 | -2485.80 |
| 566+00 | 56600.00 | 50.00 | 0.14 | 0.00 | 3.78 | 0.00 | 0.26 | 0.00 | 10.62 | 0.00 | 469.48 | 2966.71 | 0.00 | 0.00 | -2497.22 |
| 566+13 BK | 56612.52 | 12.52 | 0.01 | 0.00 | 3.26 | 0.00 | 0.03 | 0.00 | 1.63 | 0.00 | 469.52 | 2968.50 | 0.00 | 0.00 | -2498.99 |
| | | | | | | Column totals | 469.52 | 0.00 | 2698.64 | 0.00 | | | | | |

3

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4661
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:29 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew36 PLOT SCALE : 1:1

**Division 2 RAMP SC**

| STATION | Real Station | Distance | AREA (SF) | | | | Incremental Vol (CY) (Unadjusted) | | | | Cumulative Vol (CY) | | | | Mass Ordinate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Expanded Fill | Expanded EBS Backfill | Reduced EBS In Fill | |
| | | | | | | | Note 1 | Note 2 | Note 3 | | 1.0 | 1.1 | 1.3 Note 4 | 0.8 Note 5 | Note 6 |
| 533+83 AH | 53383.06 | 0.00 | 0 | 0.00 | 389.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 534+00 | 53400.00 | 16.94 | 0 | 0.00 | 376.91 | 0.00 | 0.00 | 0.00 | 240.46 | 0.00 | 0.00 | 264.51 | 0.00 | 0.00 | -264.51 |
| 534+50 | 53450.00 | 50.00 | 0 | 0.00 | 336.1 | 0.00 | 0.00 | 0.00 | 660.19 | 0.00 | 0.00 | 990.72 | 0.00 | 0.00 | -990.72 |
| 535+00 | 53500.00 | 50.00 | 0 | 0.00 | 283.3 | 0.00 | 0.00 | 0.00 | 573.52 | 0.00 | 0.00 | 1621.59 | 0.00 | 0.00 | -1621.59 |
| 535+50 | 53550.00 | 50.00 | 0.03 | 0.00 | 170.21 | 0.00 | 0.03 | 0.00 | 419.92 | 0.00 | 0.03 | 2083.50 | 0.00 | 0.00 | -2083.47 |
| 536+00 | 53600.00 | 50.00 | 0 | 0.00 | 40.78 | 0.00 | 0.03 | 0.00 | 195.36 | 0.00 | 0.06 | 2298.40 | 0.00 | 0.00 | -2298.34 |
| 536+40 | 53639.91 | 39.91 | 0 | 0.00 | 12.93 | 0.00 | 0.00 | 0.00 | 39.70 | 0.00 | 0.06 | 2342.06 | 0.00 | 0.00 | -2342.01 |
| 536+40 | 53639.91 | 0.00 | 0 | 0.00 | 19.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 2342.06 | 0.00 | 0.00 | -2342.01 |
| 536+50 | 53650.00 | 10.09 | 0 | 0.00 | 19.96 | 0.00 | 0.00 | 0.00 | 7.36 | 0.00 | 0.06 | 2350.15 | 0.00 | 0.00 | -2350.10 |
| 537+00 | 53700.00 | 50.00 | 0 | 0.00 | 19.82 | 0.00 | 0.00 | 0.00 | 36.83 | 0.00 | 0.06 | 2390.67 | 0.00 | 0.00 | -2390.61 |
| 537+50 | 53750.00 | 50.00 | 0 | 0.00 | 17.62 | 0.00 | 0.00 | 0.00 | 34.67 | 0.00 | 0.06 | 2428.80 | 0.00 | 0.00 | -2428.75 |
| 538+00 BK | 53800.00 | 50.00 | 40.07 | 0.00 | 9.08 | 0.00 | 37.10 | 0.00 | 24.72 | 0.00 | 37.16 | 2456.00 | 0.00 | 0.00 | -2418.84 |
| 538+36 AH | 53835.78 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 538+50 | 53850.00 | 14.22 | 0 | 0.00 | 15.33 | 0.00 | 0.00 | 0.00 | 4.04 | 0.00 | 0.00 | 4.44 | 0.00 | 0.00 | -4.44 |
| 539+00 | 53900.00 | 50.00 | 3.3 | 0.00 | 0.08 | 0.00 | 3.06 | 0.00 | 14.27 | 0.00 | 3.06 | 20.14 | 0.00 | 0.00 | -17.08 |
| 539+06 | 53905.78 | 5.78 | 3.92 | 0.00 | 0.02 | 0.00 | 0.77 | 0.00 | 0.01 | 0.00 | 3.83 | 20.15 | 0.00 | 0.00 | -16.32 |
| 539+06 | 53905.78 | 0.00 | 24.11 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.83 | 20.15 | 0.00 | 0.00 | -16.32 |
| 539+50 | 53950.00 | 44.22 | 19.83 | 0.00 | 0 | 0.00 | 35.98 | 0.00 | 0.00 | 0.00 | 39.81 | 20.15 | 0.00 | 0.00 | 19.66 |
| 540+00 | 54000.00 | 50.00 | 12.23 | 0.00 | 0 | 0.00 | 29.69 | 0.00 | 0.00 | 0.00 | 69.50 | 20.15 | 0.00 | 0.00 | 49.35 |
| 540+50 | 54050.00 | 50.00 | 5.48 | 0.00 | 0 | 0.00 | 16.40 | 0.00 | 0.00 | 0.00 | 85.89 | 20.15 | 0.00 | 0.00 | 65.75 |
| 540+74 BK | 54073.78 | 23.78 | 2.65 | 0.00 | 0.11 | 0.00 | 3.58 | 0.00 | 0.05 | 0.00 | 89.47 | 20.20 | 0.00 | 0.00 | 69.27 |
| | | | | | | Column totals | 126.63 | 0.00 | 2251.09 | 0.00 | | | | | |

3

1

Addendum No. 03
ID 1060-33-81
Revised Sheet 4662
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:29 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew37 PLOT SCALE : 1:1

**Division 2 RAMP SL**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material | Incremental Vol (CY) (Unadjusted) Fill | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut | Cumulative Vol (CY) Expanded Fill | Cumulative Vol (CY) Expanded EBS Backfill | Cumulative Vol (CY) Reduced EBS In Fill | Mass Ordinate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 1.0 | 1.1 | 1.3 | 0.8 | |
| | | | | | | | Note 1 | Note 2 | Note 3 | | | | Note 4 | Note 5 | Note 6 |
| 449+02 AH | 44902.32 | 0.00 | 73.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 449+50 | 44950.00 | 47.68 | 0.10 | 0.00 | 5.37 | 0.00 | 65.25 | 0.00 | 4.74 | 0.00 | 65.25 | 5.22 | 0.00 | 0.00 | 60.04 |
| 450+00 | 45000.00 | 50.00 | 0.00 | 0.00 | 49.91 | 0.00 | 0.09 | 0.00 | 51.19 | 0.00 | 65.34 | 61.52 | 0.00 | 0.00 | 3.82 |
| 450+50 | 45050.00 | 50.00 | 0.00 | 0.00 | 93.56 | 0.00 | 0.00 | 0.00 | 132.84 | 0.00 | 65.34 | 207.65 | 0.00 | 0.00 | -142.30 |
| 451+00 | 45100.00 | 50.00 | 0.00 | 0.00 | 83.53 | 0.00 | 0.00 | 0.00 | 163.97 | 0.00 | 65.34 | 388.02 | 0.00 | 0.00 | -322.67 |
| 451+41 | 45140.89 | 40.89 | 0.00 | 0.00 | 65.24 | 0.00 | 0.00 | 0.00 | 112.65 | 0.00 | 65.34 | 511.93 | 0.00 | 0.00 | -446.59 |
| 451+41 | 45140.89 | 0.00 | 0.00 | 0.00 | 89.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 65.34 | 511.93 | 0.00 | 0.00 | -446.59 |
| 451+50 | 45150.00 | 9.11 | 0.00 | 0.00 | 83.51 | 0.00 | 0.00 | 0.00 | 29.14 | 0.00 | 65.34 | 543.99 | 0.00 | 0.00 | -478.65 |
| 452+00 | 45200.00 | 50.00 | 0.00 | 0.00 | 50.61 | 0.00 | 0.00 | 0.00 | 124.19 | 0.00 | 65.34 | 680.59 | 0.00 | 0.00 | -615.25 |
| 452+50 | 45250.00 | 50.00 | 0.07 | 0.00 | 27.70 | 0.00 | 0.06 | 0.00 | 72.51 | 0.00 | 65.41 | 760.35 | 0.00 | 0.00 | -694.94 |
| 453+00 | 45300.00 | 50.00 | 2.63 | 0.00 | 13.22 | 0.00 | 2.50 | 0.00 | 37.89 | 0.00 | 67.91 | 802.03 | 0.00 | 0.00 | -734.12 |
| 453+06 | 45306.11 | 6.11 | 3.19 | 0.00 | 12.17 | 0.00 | 0.66 | 0.00 | 2.87 | 0.00 | 68.57 | 805.19 | 0.00 | 0.00 | -736.62 |
| 453+06 | 45306.11 | 0.00 | 7.08 | 0.00 | 17.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 68.57 | 805.19 | 0.00 | 0.00 | -736.62 |
| 453+50 | 45350.00 | 43.89 | 10.41 | 0.00 | 10.43 | 0.00 | 14.22 | 0.00 | 23.01 | 0.00 | 82.78 | 830.50 | 0.00 | 0.00 | -747.72 |
| 454+00 | 45400.00 | 50.00 | 9.95 | 0.00 | 7.09 | 0.00 | 18.85 | 0.00 | 16.22 | 0.00 | 101.63 | 848.35 | 0.00 | 0.00 | -746.71 |
| 454+50 | 45450.00 | 50.00 | 6.35 | 0.00 | 7.02 | 0.00 | 15.09 | 0.00 | 13.06 | 0.00 | 116.73 | 862.72 | 0.00 | 0.00 | -745.99 |
| 455+00 | 45500.00 | 50.00 | 4.49 | 0.00 | 6.82 | 0.00 | 10.04 | 0.00 | 12.81 | 0.00 | 126.76 | 876.81 | 0.00 | 0.00 | -750.05 |
| 455+46 BK | 45545.56 | 45.56 | 0.82 | 0.00 | 9.56 | 0.00 | 4.48 | 0.00 | 13.82 | 0.00 | 131.24 | 892.02 | 0.00 | 0.00 | -760.77 |
| | | Column totals | | | | | 131.24 | 0.00 | 810.92 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4663
September 14, 2015

**Division 2 RAMP FH**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 789+56 AH | 78956.16 | 0.00 | 93.46 | 0.00 | 13.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 790+00 | 79000.00 | 43.84 | 127.46 | 0.00 | 1.05 | 0.00 | 179.35 | 0.00 | 11.67 | 0.00 | 179.35 | 12.84 | 0.00 | 0.00 | 166.51 |
| 790+50 | 79050.00 | 50.00 | 215.46 | 0.00 | 0.00 | 0.00 | 317.52 | 0.00 | 0.00 | 0.00 | 496.87 | 12.84 | 0.00 | 0.00 | 484.03 |
| 791+00 | 79100.00 | 50.00 | 653.38 | 0.00 | 1.01 | 0.00 | 804.48 | 0.00 | 0.94 | 0.00 | 1301.35 | 13.87 | 0.00 | 0.00 | 1287.48 |
| 791+45 BK | 79144.88 | 44.88 | 958.30 | 0.00 | 0.00 | 0.00 | 1339.49 | 0.00 | 0.84 | 0.00 | 2640.84 | 14.79 | 0.00 | 0.00 | 2626.05 |
| | | | | | | Column totals | 2640.84 | 0.00 | 13.45 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4664
September 14, 2015

**Division 2 W. WISCONSIN AVENUE**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21+13 AH | 2113.06 | 0.00 | 33.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21+50 | 2150.00 | 36.94 | 34.31 | 0.00 | 0.12 | 0.00 | 46.27 | 0.00 | 0.08 | 0.00 | 46.27 | 0.09 | 0.00 | 0.00 | 46.18 |
| 22+00 | 2200.00 | 50.00 | 62.36 | 0.00 | 0.00 | 0.00 | 89.51 | 0.00 | 0.11 | 0.00 | 135.78 | 0.21 | 0.00 | 0.00 | 135.57 |
| 22+50 | 2250.00 | 50.00 | 56.24 | 0.00 | 0.00 | 0.00 | 109.81 | 0.00 | 0.00 | 0.00 | 245.59 | 0.21 | 0.00 | 0.00 | 245.38 |
| 23+00 | 2300.00 | 50.00 | 56.41 | 0.00 | 0.00 | 0.00 | 104.31 | 0.00 | 0.00 | 0.00 | 349.90 | 0.21 | 0.00 | 0.00 | 349.69 |
| 23+50 | 2350.00 | 50.00 | 32.37 | 0.00 | 0.49 | 0.00 | 82.20 | 0.00 | 0.45 | 0.00 | 432.10 | 0.71 | 0.00 | 0.00 | 431.39 |
| 24+00 | 2400.00 | 50.00 | 20.56 | 0.00 | 0.91 | 0.00 | 49.01 | 0.00 | 1.30 | 0.00 | 481.11 | 2.14 | 0.00 | 0.00 | 478.98 |
| 24+50 | 2450.00 | 50.00 | 26.21 | 0.00 | 1.46 | 0.00 | 43.31 | 0.00 | 2.19 | 0.00 | 524.42 | 4.55 | 0.00 | 0.00 | 519.87 |
| 25+00 | 2500.00 | 50.00 | 35.92 | 0.00 | 2.25 | 0.00 | 57.53 | 0.00 | 3.44 | 0.00 | 581.95 | 8.33 | 0.00 | 0.00 | 573.62 |
| 25+50 | 2550.00 | 50.00 | 35.41 | 0.00 | 1.08 | 0.00 | 66.05 | 0.00 | 3.08 | 0.00 | 647.99 | 11.72 | 0.00 | 0.00 | 636.27 |
| 26+00 | 2600.00 | 50.00 | 13.68 | 0.00 | 0.00 | 0.00 | 45.45 | 0.00 | 1.00 | 0.00 | 693.45 | 12.82 | 0.00 | 0.00 | 680.62 |
| 26+23 BK | 2623.01 | 23.01 | 7.11 | 0.00 | 0.00 | 0.00 | 8.86 | 0.00 | 0.00 | 0.00 | 702.31 | 12.82 | 0.00 | 0.00 | 689.48 |
| | | Column totals | | | | | 702.31 | 0.00 | 11.66 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4665
September 14, 2015


9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:29 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew40 PLOT SCALE : 1:1

**Division 2 N. 97TH STREET (TT)**

| STATION | Real Station | Distance | AREA (SF) | | | | Incremental Vol (CY) (Unadjusted) | | | | Cumulative Vol (CY) | | | | Mass |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut Note 1 | Salvaged/ Unusable Pavement Material Note 2 | Fill Note 3 | EBS | Cut 1.0 | Expanded Fill 1.1 | Expanded EBS Backfill 1.3 Note 4 | Reduced EBS In Fill 0.8 Note 5 | Ordinate Note 6 |
| 46+13 AH | 4613.39 | 0.00 | 54.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 46+50 | 4650.00 | 36.61 | 28.76 | 0.00 | 0.00 | 0.00 | 56.25 | 0.00 | 0.00 | 0.00 | 56.25 | 0.00 | 0.00 | 0.00 | 56.25 |
| 47+00 | 4700.00 | 50.00 | 23.83 | 0.00 | 0.00 | 0.00 | 48.69 | 0.00 | 0.00 | 0.00 | 104.95 | 0.00 | 0.00 | 0.00 | 104.95 |
| 47+50 | 4750.00 | 50.00 | 18.20 | 0.00 | 1.43 | 0.00 | 38.92 | 0.00 | 1.32 | 0.00 | 143.86 | 1.46 | 0.00 | 0.00 | 142.41 |
| 48+00 | 4800.00 | 50.00 | 5.22 | 0.00 | 6.11 | 0.00 | 21.69 | 0.00 | 6.98 | 0.00 | 165.55 | 9.14 | 0.00 | 0.00 | 156.41 |
| 48+50 | 4850.00 | 50.00 | 0.00 | 0.00 | 19.82 | 0.00 | 4.83 | 0.00 | 24.01 | 0.00 | 170.38 | 35.55 | 0.00 | 0.00 | 134.83 |
| 49+00 | 4900.00 | 50.00 | 0.00 | 0.00 | 29.36 | 0.00 | 0.00 | 0.00 | 45.54 | 0.00 | 170.38 | 85.64 | 0.00 | 0.00 | 84.74 |
| 49+50 | 4950.00 | 50.00 | 2.84 | 0.00 | 46.44 | 0.00 | 2.63 | 0.00 | 70.19 | 0.00 | 173.01 | 162.84 | 0.00 | 0.00 | 10.17 |
| 49+71 BK | 4971.38 | 21.38 | 16.52 | 0.00 | 0.00 | 0.00 | 5.65 | 0.00 | 13.61 | 0.00 | 178.66 | 177.82 | 0.00 | 0.00 | 0.84 |
| | | | | | | Column totals | 178.66 | 0.00 | 161.65 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4666
September 14, 2015


9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:29 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew41 PLOT SCALE : 1:1

**Division 2 W. FAIRVIEW AVE (FV)**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17+26 AH | 1725.58 | 0.00 | 24.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 17+50 | 1750.00 | 24.42 | 23.22 | 0.00 | 0.00 | 0.00 | 21.38 | 0.00 | 0.00 | 0.00 | 21.38 | 0.00 | 0.00 | 0.00 | 21.38 |
| 18+00 | 1800.00 | 50.00 | 22.88 | 0.00 | 0.00 | 0.00 | 42.69 | 0.00 | 0.00 | 0.00 | 64.06 | 0.00 | 0.00 | 0.00 | 64.06 |
| 18+50 | 1850.00 | 50.00 | 23.75 | 0.00 | 0.00 | 0.00 | 43.18 | 0.00 | 0.00 | 0.00 | 107.24 | 0.00 | 0.00 | 0.00 | 107.24 |
| 19+00 | 1900.00 | 50.00 | 22.63 | 0.00 | 2.06 | 0.00 | 42.94 | 0.00 | 1.91 | 0.00 | 150.18 | 2.10 | 0.00 | 0.00 | 148.08 |
| 19+50 | 1950.00 | 50.00 | 22.58 | 0.00 | 1.95 | 0.00 | 41.86 | 0.00 | 3.71 | 0.00 | 192.04 | 6.18 | 0.00 | 0.00 | 185.86 |
| 20+00 | 2000.00 | 50.00 | 22.81 | 0.00 | 2.37 | 0.00 | 42.03 | 0.00 | 4.00 | 0.00 | 234.07 | 10.58 | 0.00 | 0.00 | 223.49 |
| 20+50 | 2050.00 | 50.00 | 22.27 | 0.00 | 3.42 | 0.00 | 41.74 | 0.00 | 5.36 | 0.00 | 275.81 | 16.48 | 0.00 | 0.00 | 259.33 |
| 21+00 | 2100.00 | 50.00 | 22.37 | 0.00 | 0.00 | 0.00 | 41.33 | 0.00 | 3.17 | 0.00 | 317.15 | 19.96 | 0.00 | 0.00 | 297.18 |
| 21+50 | 2150.00 | 50.00 | 24.92 | 0.00 | 0.00 | 0.00 | 43.79 | 0.00 | 0.00 | 0.00 | 360.93 | 19.96 | 0.00 | 0.00 | 340.97 |
| 21+63 BK | 2162.65 | 12.65 | 22.71 | 0.00 | 0.00 | 0.00 | 11.16 | 0.00 | 0.00 | 0.00 | 372.09 | 19.96 | 0.00 | 0.00 | 352.13 |
| | | Column totals | | | | | 372.09 | 0.00 | 18.15 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4667
September 14, 2015

**Division 2 ACCESS PATH (XM)**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9+80 AH | 980.00 | 0.00 | 3.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10+00 | 1000.00 | 20.00 | 4.51 | 0.00 | 0.00 | 0.00 | 3.10 | 0.00 | 0.00 | 0.00 | 3.10 | 0.00 | 0.00 | 0.00 | 3.10 |
| 10+50 | 1050.00 | 50.00 | 1.19 | 0.00 | 35.69 | 0.00 | 5.28 | 0.00 | 33.05 | 0.00 | 8.38 | 36.35 | 0.00 | 0.00 | -27.97 |
| 11+00 | 1100.00 | 50.00 | 51.78 | 0.00 | 0.00 | 0.00 | 49.05 | 0.00 | 33.05 | 0.00 | 57.43 | 72.70 | 0.00 | 0.00 | -15.27 |
| 11+50 | 1150.00 | 50.00 | 80.76 | 0.00 | 0.00 | 0.00 | 122.72 | 0.00 | 0.00 | 0.00 | 180.15 | 72.70 | 0.00 | 0.00 | 107.45 |
| 12+00 | 1200.00 | 50.00 | 95.08 | 0.00 | 0.00 | 0.00 | 162.81 | 0.00 | 0.00 | 0.00 | 342.96 | 72.70 | 0.00 | 0.00 | 270.26 |
| 12+50 | 1250.00 | 50.00 | 124.41 | 0.00 | 0.00 | 0.00 | 203.23 | 0.00 | 0.00 | 0.00 | 546.20 | 72.70 | 0.00 | 0.00 | 473.49 |
| 13+00 | 1300.00 | 50.00 | 99.13 | 0.00 | 0.00 | 0.00 | 206.98 | 0.00 | 0.00 | 0.00 | 753.18 | 72.70 | 0.00 | 0.00 | 680.48 |
| 13+50 | 1350.00 | 50.00 | 92.65 | 0.00 | 0.00 | 0.00 | 177.57 | 0.00 | 0.00 | 0.00 | 930.75 | 72.70 | 0.00 | 0.00 | 858.05 |
| 14+00 | 1400.00 | 50.00 | 91.74 | 0.00 | 0.00 | 0.00 | 170.73 | 0.00 | 0.00 | 0.00 | 1101.48 | 72.70 | 0.00 | 0.00 | 1028.78 |
| 14+50 | 1450.00 | 50.00 | 91.40 | 0.00 | 0.01 | 0.00 | 169.57 | 0.00 | 0.01 | 0.00 | 1271.06 | 72.71 | 0.00 | 0.00 | 1198.35 |
| 15+00 | 1500.00 | 50.00 | 36.69 | 0.00 | 2.97 | 0.00 | 118.60 | 0.00 | 2.76 | 0.00 | 1389.66 | 75.75 | 0.00 | 0.00 | 1313.91 |
| 15+50 | 1550.00 | 50.00 | 8.53 | 0.00 | 22.53 | 0.00 | 41.87 | 0.00 | 23.61 | 0.00 | 1431.53 | 101.72 | 0.00 | 0.00 | 1329.81 |
| 16+00 | 1600.00 | 50.00 | 1.97 | 0.00 | 41.20 | 0.00 | 9.72 | 0.00 | 59.01 | 0.00 | 1441.25 | 166.63 | 0.00 | 0.00 | 1274.62 |
| 16+50 | 1650.00 | 50.00 | 1.21 | 0.00 | 52.87 | 0.00 | 2.94 | 0.00 | 87.10 | 0.00 | 1444.20 | 262.44 | 0.00 | 0.00 | 1181.75 |
| 16+93 BK | 1693.23 | 43.23 | 5.86 | 0.00 | 57.93 | 0.00 | 5.66 | 0.00 | 88.70 | 0.00 | 1449.86 | 360.01 | 0.00 | 0.00 | 1089.84 |
| | | Column totals | | | | | 1449.86 | 0.00 | 327.28 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4668
September 14, 2015

**Division 2 BIKE PATH A**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10+10 AH | 1010.29 | 0.00 | 7.54 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10+50 | 1050.00 | 39.71 | 9.31 | 0.00 | 1.58 | 0.00 | 12.39 | 0.00 | 1.25 | 0.00 | 12.39 | 1.38 | 0.00 | 0.00 | 11.02 |
| 11+00 | 1100.00 | 50.00 | 25.73 | 0.00 | 6.65 | 0.00 | 32.44 | 0.00 | 7.62 | 0.00 | 44.84 | 9.76 | 0.00 | 0.00 | 35.08 |
| 11+50 | 1150.00 | 50.00 | 20.74 | 0.00 | 0.51 | 0.00 | 43.03 | 0.00 | 6.63 | 0.00 | 87.86 | 17.05 | 0.00 | 0.00 | 70.81 |
| 12+00 | 1200.00 | 50.00 | 23.02 | 0.00 | 7.06 | 0.00 | 40.52 | 0.00 | 7.01 | 0.00 | 128.38 | 24.76 | 0.00 | 0.00 | 103.62 |
| 12+50 | 1250.00 | 50.00 | 30.69 | 0.00 | 0.59 | 0.00 | 49.73 | 0.00 | 7.08 | 0.00 | 178.11 | 32.55 | 0.00 | 0.00 | 145.56 |
| 13+00 | 1300.00 | 50.00 | 0.17 | 0.00 | 34.96 | 0.00 | 28.57 | 0.00 | 32.92 | 0.00 | 206.69 | 68.76 | 0.00 | 0.00 | 137.93 |
| 13+19 BK | 1319.05 | 19.05 | 30.14 | 0.00 | 0.00 | 0.00 | 10.69 | 0.00 | 12.33 | 0.00 | 217.38 | 82.33 | 0.00 | 0.00 | 135.05 |
| | | Column totals | | | | | 217.38 | 0.00 | 74.84 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4669
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:29 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew44 PLOT SCALE : 1:1

**Division 2 BIKE PATH B**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10+15 AH | 1015.18 | 0.00 | 96.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10+50 | 1050.00 | 34.82 | 34.54 | 0.00 | 0.00 | 0.00 | 84.55 | 0.00 | 0.00 | 0.00 | 84.55 | 0.00 | 0.00 | 0.00 | 84.55 |
| 11+00 | 1100.00 | 50.00 | 0.00 | 0.00 | 500.74 | 0.00 | 31.98 | 0.00 | 463.65 | 0.00 | 116.54 | 510.01 | 0.00 | 0.00 | -393.48 |
| 11+50 | 1150.00 | 50.00 | 0.00 | 0.00 | 672.32 | 0.00 | 0.00 | 0.00 | 1086.17 | 0.00 | 116.54 | 1704.80 | 0.00 | 0.00 | -1588.26 |
| 12+00 | 1200.00 | 50.00 | 0.00 | 0.00 | 935.62 | 0.00 | 0.00 | 0.00 | 1488.83 | 0.00 | 116.54 | 3342.51 | 0.00 | 0.00 | -3225.98 |
| 12+50 | 1250.00 | 50.00 | 0.00 | 0.00 | 780.56 | 0.00 | 0.00 | 0.00 | 1589.06 | 0.00 | 116.54 | 5090.47 | 0.00 | 0.00 | -4973.94 |
| 13+00 | 1300.00 | 50.00 | 0.00 | 0.00 | 232.98 | 0.00 | 0.00 | 0.00 | 938.46 | 0.00 | 116.54 | 6122.78 | 0.00 | 0.00 | -6006.25 |
| 13+50 | 1350.00 | 50.00 | 231.49 | 0.00 | 25.63 | 0.00 | 214.34 | 0.00 | 239.45 | 0.00 | 330.88 | 6386.18 | 0.00 | 0.00 | -6055.30 |
| 14+00 | 1400.00 | 50.00 | 0.00 | 0.00 | 202.04 | 0.00 | 214.34 | 0.00 | 210.81 | 0.00 | 545.22 | 6618.07 | 0.00 | 0.00 | -6072.85 |
| 14+50 | 1450.00 | 50.00 | 0.00 | 0.00 | 328.86 | 0.00 | 0.00 | 0.00 | 491.57 | 0.00 | 545.22 | 7158.80 | 0.00 | 0.00 | -6613.58 |
| 15+00 | 1500.00 | 50.00 | 0.00 | 0.00 | 220.48 | 0.00 | 0.00 | 0.00 | 508.65 | 0.00 | 545.22 | 7718.31 | 0.00 | 0.00 | -7173.09 |
| 15+50 | 1550.00 | 50.00 | 0.00 | 0.00 | 337.89 | 0.00 | 0.00 | 0.00 | 517.01 | 0.00 | 545.22 | 8287.02 | 0.00 | 0.00 | -7741.80 |
| 16+00 | 1600.00 | 50.00 | 0.00 | 0.00 | 311.44 | 0.00 | 0.00 | 0.00 | 601.23 | 0.00 | 545.22 | 8948.38 | 0.00 | 0.00 | -8403.16 |
| 16+50 | 1650.00 | 50.00 | 0.04 | 0.00 | 228.54 | 0.00 | 0.04 | 0.00 | 499.98 | 0.00 | 545.26 | 9498.36 | 0.00 | 0.00 | -8953.10 |
| 17+00 | 1700.00 | 50.00 | 0.00 | 1.00 | 278.50 | 0.00 | 0.04 | 0.00 | 469.48 | 0.00 | 545.30 | 10014.79 | 0.00 | 0.00 | -9469.49 |
| 17+50 | 1750.00 | 50.00 | 0.00 | 1.00 | 161.69 | 0.00 | 0.00 | 0.00 | 407.58 | 0.00 | 545.30 | 10463.13 | 0.00 | 0.00 | -9917.83 |
| 17+79 BK | 1778.55 | 28.55 | 15.52 | 0.00 | 0.00 | 0.00 | 8.21 | 0.00 | 28.50 | 0.00 | 553.50 | 10494.47 | 0.00 | 0.00 | -9940.97 |
| | | | | | | Column totals | 553.50 | 0.00 | 9540.43 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4670
September 14, 2015



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:29 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew45 PLOT SCALE : 1:1

**Division 2 RAMP BD GRADING**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 730+00 AH | 73000.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 730+50 | 73050.00 | 50.00 | 2.73 | 0.00 | 68.56 | 0.00 | 2.55 | 0.00 | 63.48 | 0.00 | 2.55 | 69.83 | 0.00 | 0.00 | -67.28 |
| 731+00 | 73100.00 | 50.00 | 0.12 | 0.00 | 14.73 | 0.00 | 2.64 | 0.00 | 77.12 | 0.00 | 5.19 | 154.66 | 0.00 | 0.00 | -149.48 |
| 731+50 | 73150.00 | 50.00 | 0.11 | 0.00 | 7.92 | 0.00 | 0.21 | 0.00 | 20.97 | 0.00 | 5.40 | 177.73 | 0.00 | 0.00 | -172.33 |
| 732+00 | 73200.00 | 50.00 | 0.13 | 0.00 | 14.59 | 0.00 | 0.22 | 0.00 | 20.84 | 0.00 | 5.62 | 200.66 | 0.00 | 0.00 | -195.04 |
| 732+50 | 73250.00 | 50.00 | 30.92 | 0.00 | 23.96 | 0.00 | 28.75 | 0.00 | 35.69 | 0.00 | 34.37 | 239.92 | 0.00 | 0.00 | -205.55 |
| 733+00 | 73300.00 | 50.00 | 10.89 | 0.00 | 46.63 | 0.00 | 38.71 | 0.00 | 65.36 | 0.00 | 73.08 | 311.82 | 0.00 | 0.00 | -238.74 |
| 733+36 BK | 73336.06 | 36.06 | 0.00 | 0.00 | 154.73 | 0.00 | 7.27 | 0.00 | 134.46 | 0.00 | 80.36 | 459.73 | 0.00 | 0.00 | -379.37 |
| | | | | | Column totals | | 80.36 | 0.00 | 417.94 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4671
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:29 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew46 PLOT SCALE : 1:1

**DIVISION 2 MINOR RETAINING WALL R-2 (519G+81 TO 521G+33)**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut Note 1 | Expanded Fill 1.1 | Expanded EBS Backfill 1.30 Note 4 | Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10+00 AH | 1000.00 | 0.00 | 0.00 | 0.00 | 1.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10+25 | 1025.00 | 25.00 | 0.00 | 0.00 | 30.41 | 0.00 | 0.00 | 0.00 | 14.62 | 0.00 | 0.00 | 16.08 | 0.00 | 0.00 | -16.08 |
| 10+50 | 1050.00 | 25.00 | 0.00 | 0.00 | 36.10 | 0.00 | 0.00 | 0.00 | 30.79 | 0.00 | 0.00 | 49.95 | 0.00 | 0.00 | -49.95 |
| 10+75 | 1075.00 | 25.00 | 0.00 | 0.00 | 5.45 | 0.00 | 0.00 | 0.00 | 19.24 | 0.00 | 0.00 | 71.11 | 0.00 | 0.00 | -71.11 |
| 11+00 | 1100.00 | 25.00 | 0.00 | 0.00 | 6.89 | 0.00 | 0.00 | 0.00 | 5.71 | 0.00 | 0.00 | 77.40 | 0.00 | 0.00 | -77.40 |
| 11+25 | 1125.00 | 25.00 | 0.00 | 0.00 | 7.68 | 0.00 | 0.00 | 0.00 | 6.75 | 0.00 | 0.00 | 84.82 | 0.00 | 0.00 | -84.82 |
| 11+50 | 1150.00 | 25.00 | 0.00 | 0.00 | 4.58 | 0.00 | 0.00 | 0.00 | 5.68 | 0.00 | 0.00 | 91.06 | 0.00 | 0.00 | -91.06 |
| 11+75 | 1175.00 | 25.00 | 0.00 | 0.00 | 1.75 | 0.00 | 0.00 | 0.00 | 2.93 | 0.00 | 0.00 | 94.28 | 0.00 | 0.00 | -94.28 |
| 11+77 BK | 1177.00 | 2.00 | 0.00 | 0.00 | 3.81 | 0.00 | 0.00 | 0.00 | 0.21 | 0.00 | 0.00 | 94.51 | 0.00 | 0.00 | -94.51 |
| | | Column totals | | | | | 0.00 | 0.00 | 85.92 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4672
September 14, 2015


9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:29 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew47 PLOT SCALE : 1:1

**Division 2 NSD**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1+55 AH | 154.58 | 0.00 | 273.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2+00 | 200.00 | 45.42 | 145.55 | 0.00 | 0.00 | 0.00 | 352.46 | 0.00 | 0.00 | 0.00 | 352.46 | 0.00 | 0.00 | 0.00 | 352.46 |
| 2+50 | 250.00 | 50.00 | 173.97 | 0.00 | 24.41 | 0.00 | 295.85 | 0.00 | 22.60 | 0.00 | 648.31 | 24.86 | 0.00 | 0.00 | 623.45 |
| 3+00 | 300.00 | 50.00 | 412.51 | 0.00 | 16.62 | 0.00 | 543.04 | 0.00 | 37.99 | 0.00 | 1191.35 | 66.65 | 0.00 | 0.00 | 1124.70 |
| 3+50 | 350.00 | 50.00 | 681.77 | 0.00 | 9.60 | 0.00 | 1013.22 | 0.00 | 24.28 | 0.00 | 2204.57 | 93.36 | 0.00 | 0.00 | 2111.21 |
| 4+00 | 400.00 | 50.00 | 297.19 | 0.00 | 16.09 | 0.00 | 906.44 | 0.00 | 23.79 | 0.00 | 3111.01 | 119.52 | 0.00 | 0.00 | 2991.49 |
| 4+50 | 450.00 | 50.00 | 236.47 | 0.00 | 26.45 | 0.00 | 494.13 | 0.00 | 39.39 | 0.00 | 3605.14 | 162.85 | 0.00 | 0.00 | 3442.29 |
| 5+00 | 500.00 | 50.00 | 246.64 | 0.00 | 12.62 | 0.00 | 447.32 | 0.00 | 36.18 | 0.00 | 4052.47 | 202.64 | 0.00 | 0.00 | 3849.82 |
| 5+50 | 550.00 | 50.00 | 250.06 | 0.00 | 9.74 | 0.00 | 459.91 | 0.00 | 20.70 | 0.00 | 4512.38 | 225.42 | 0.00 | 0.00 | 4286.96 |
| 6+00 | 600.00 | 50.00 | 232.49 | 0.00 | 10.52 | 0.00 | 446.81 | 0.00 | 18.76 | 0.00 | 4959.18 | 246.05 | 0.00 | 0.00 | 4713.13 |
| 6+50 | 650.00 | 50.00 | 160.59 | 0.00 | 9.64 | 0.00 | 363.96 | 0.00 | 18.67 | 0.00 | 5323.14 | 266.59 | 0.00 | 0.00 | 5056.56 |
| 7+00 | 700.00 | 50.00 | 69.21 | 0.00 | 6.53 | 0.00 | 212.78 | 0.00 | 14.97 | 0.00 | 5535.92 | 283.06 | 0.00 | 0.00 | 5252.87 |
| 7+50 | 750.00 | 50.00 | 89.57 | 0.00 | 8.96 | 0.00 | 147.02 | 0.00 | 14.34 | 0.00 | 5682.94 | 298.83 | 0.00 | 0.00 | 5384.11 |
| 8+00 | 800.00 | 50.00 | 91.04 | 0.00 | 2.08 | 0.00 | 167.23 | 0.00 | 10.22 | 0.00 | 5850.17 | 310.08 | 0.00 | 0.00 | 5540.09 |
| 8+50 | 850.00 | 50.00 | 103.40 | 0.00 | 0.00 | 0.00 | 180.04 | 0.00 | 1.93 | 0.00 | 6030.21 | 312.20 | 0.00 | 0.00 | 5718.01 |
| 9+00 | 900.00 | 50.00 | 126.97 | 0.00 | 0.00 | 0.00 | 213.31 | 0.00 | 0.00 | 0.00 | 6243.51 | 312.20 | 0.00 | 0.00 | 5931.32 |
| 9+50 | 950.00 | 50.00 | 110.55 | 0.00 | 0.71 | 0.00 | 219.93 | 0.00 | 0.66 | 0.00 | 6463.44 | 312.92 | 0.00 | 0.00 | 6150.52 |
| 10+00 | 1000.00 | 50.00 | 125.27 | 0.00 | 4.95 | 0.00 | 218.35 | 0.00 | 5.24 | 0.00 | 6681.79 | 318.68 | 0.00 | 0.00 | 6363.11 |
| 10+50 | 1050.00 | 50.00 | 116.66 | 0.00 | 7.62 | 0.00 | 224.01 | 0.00 | 11.64 | 0.00 | 6905.80 | 331.49 | 0.00 | 0.00 | 6574.31 |
| 11+00 | 1100.00 | 50.00 | 97.60 | 0.00 | 9.89 | 0.00 | 198.39 | 0.00 | 16.21 | 0.00 | 7104.19 | 349.32 | 0.00 | 0.00 | 6754.87 |
| 11+50 | 1150.00 | 50.00 | 68.21 | 0.00 | 0.00 | 0.00 | 153.53 | 0.00 | 9.16 | 0.00 | 7257.72 | 359.39 | 0.00 | 0.00 | 6898.32 |
| 12+00 | 1200.00 | 50.00 | 72.79 | 0.00 | 0.00 | 0.00 | 130.56 | 0.00 | 0.00 | 0.00 | 7388.27 | 359.39 | 0.00 | 0.00 | 7028.88 |
| 12+50 | 1250.00 | 50.00 | 113.90 | 0.00 | 0.00 | 0.00 | 172.86 | 0.00 | 0.00 | 0.00 | 7561.14 | 359.39 | 0.00 | 0.00 | 7201.74 |
| 13+00 | 1300.00 | 50.00 | 152.09 | 0.00 | 0.00 | 0.00 | 246.29 | 0.00 | 0.00 | 0.00 | 7807.42 | 359.39 | 0.00 | 0.00 | 7448.03 |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4673
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 2 NSD**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13+50 | 1350.00 | 50.00 | 111.12 | 0.00 | 0.00 | 0.00 | 243.71 | 0.00 | 0.00 | 0.00 | 8051.14 | 359.39 | 0.00 | 0.00 | 7691.74 |
| 14+00 | 1400.00 | 50.00 | 46.61 | 0.00 | 0.00 | 0.00 | 146.05 | 0.00 | 0.00 | 0.00 | 8197.18 | 359.39 | 0.00 | 0.00 | 7837.79 |
| 14+50 | 1450.00 | 50.00 | 15.51 | 0.00 | 13.49 | 0.00 | 57.52 | 0.00 | 12.49 | 0.00 | 8254.70 | 373.13 | 0.00 | 0.00 | 7881.57 |
| 15+00 | 1500.00 | 50.00 | 1.52 | 0.00 | 18.44 | 0.00 | 15.77 | 0.00 | 29.56 | 0.00 | 8270.47 | 405.66 | 0.00 | 0.00 | 7864.81 |
| 15+50 | 1550.00 | 50.00 | 0.07 | 0.00 | 29.28 | 0.00 | 1.47 | 0.00 | 44.19 | 0.00 | 8271.94 | 454.26 | 0.00 | 0.00 | 7817.68 |
| 16+00 | 1600.00 | 50.00 | 6.64 | 0.00 | 38.90 | 0.00 | 6.21 | 0.00 | 63.13 | 0.00 | 8278.15 | 523.70 | 0.00 | 0.00 | 7754.45 |
| 16+50 | 1650.00 | 50.00 | 2.36 | 0.00 | 51.82 | 0.00 | 8.33 | 0.00 | 84.00 | 0.00 | 8286.49 | 616.10 | 0.00 | 0.00 | 7670.39 |
| 17+00 | 1700.00 | 50.00 | 0.00 | 0.00 | 103.25 | 0.00 | 2.19 | 0.00 | 143.58 | 0.00 | 8288.67 | 774.04 | 0.00 | 0.00 | 7514.63 |
| 17+50 | 1750.00 | 50.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 95.60 | 0.00 | 8288.67 | 879.21 | 0.00 | 0.00 | 7409.47 |
| 18+00 | 1800.00 | 50.00 | 0.00 | 0.00 | 121.25 | 0.00 | 0.00 | 0.00 | 112.27 | 0.00 | 8288.67 | 1002.70 | 0.00 | 0.00 | 7285.97 |
| 18+50 | 1850.00 | 50.00 | 0.44 | 0.00 | 71.50 | 0.00 | 0.41 | 0.00 | 178.47 | 0.00 | 8289.08 | 1199.02 | 0.00 | 0.00 | 7090.06 |
| 19+00 | 1900.00 | 50.00 | 0.69 | 0.00 | 78.60 | 0.00 | 1.05 | 0.00 | 138.98 | 0.00 | 8290.13 | 1351.90 | 0.00 | 0.00 | 6938.23 |
| 19+50 | 1950.00 | 50.00 | 15.11 | 0.00 | 93.35 | 0.00 | 14.63 | 0.00 | 159.21 | 0.00 | 8304.76 | 1527.03 | 0.00 | 0.00 | 6777.72 |
| 20+00 | 2000.00 | 50.00 | 15.13 | 0.00 | 147.62 | 0.00 | 28.00 | 0.00 | 223.12 | 0.00 | 8332.76 | 1772.47 | 0.00 | 0.00 | 6560.29 |
| 20+50 | 2050.00 | 50.00 | 15.19 | 0.00 | 178.44 | 0.00 | 28.07 | 0.00 | 301.91 | 0.00 | 8360.83 | 2104.56 | 0.00 | 0.00 | 6256.26 |
| 21+00 | 2100.00 | 50.00 | 15.39 | 0.00 | 182.29 | 0.00 | 28.31 | 0.00 | 334.01 | 0.00 | 8389.14 | 2471.98 | 0.00 | 0.00 | 5917.17 |
| 21+50 | 2150.00 | 50.00 | 13.57 | 0.00 | 192.60 | 0.00 | 26.81 | 0.00 | 347.12 | 0.00 | 8415.96 | 2853.81 | 0.00 | 0.00 | 5562.15 |
| 22+00 | 2200.00 | 50.00 | 10.95 | 0.00 | 151.21 | 0.00 | 22.70 | 0.00 | 318.34 | 0.00 | 8438.66 | 3203.98 | 0.00 | 0.00 | 5234.68 |
| 22+50 | 2250.00 | 50.00 | 6.39 | 0.00 | 168.07 | 0.00 | 16.06 | 0.00 | 295.63 | 0.00 | 8454.72 | 3529.18 | 0.00 | 0.00 | 4925.54 |
| 23+00 | 2300.00 | 50.00 | 3.35 | 0.00 | 105.99 | 0.00 | 9.02 | 0.00 | 253.76 | 0.00 | 8463.74 | 3808.31 | 0.00 | 0.00 | 4655.42 |
| 23+15 BK | 2314.70 | 14.70 | 2.97 | 0.00 | 95.27 | 0.00 | 1.72 | 0.00 | 54.79 | 0.00 | 8465.46 | 3868.58 | 0.00 | 0.00 | 4596.88 |
| | | Column totals | | | | | 8465.46 | 0.00 | 3516.89 | 0.00 | | | | | |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4674
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

**Division 2 NSJ**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 315+32 AH | 31531.84 | 0.00 | 3.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 315+50 | 31550.00 | 18.16 | 3.06 | 0.00 | 2.27 | 0.00 | 2.06 | 0.00 | 0.76 | 0.00 | 2.06 | 0.84 | 0.00 | 0.00 | 1.22 |
| 316+00 | 31600.00 | 50.00 | 3.06 | 0.00 | 5.63 | 0.00 | 5.67 | 0.00 | 7.31 | 0.00 | 7.73 | 8.89 | 0.00 | 0.00 | -1.16 |
| 316+50 | 31650.00 | 50.00 | 3.05 | 0.00 | 5.14 | 0.00 | 5.66 | 0.00 | 9.97 | 0.00 | 13.39 | 19.86 | 0.00 | 0.00 | -6.47 |
| 317+00 | 31700.00 | 50.00 | 4.22 | 0.00 | 0.60 | 0.00 | 6.73 | 0.00 | 5.31 | 0.00 | 20.12 | 25.70 | 0.00 | 0.00 | -5.58 |
| 317+50 | 31750.00 | 50.00 | 5.03 | 0.00 | 0.50 | 0.00 | 8.56 | 0.00 | 1.02 | 0.00 | 28.68 | 26.82 | 0.00 | 0.00 | 1.86 |
| 318+00 | 31800.00 | 50.00 | 4.73 | 0.00 | 0.54 | 0.00 | 9.04 | 0.00 | 0.96 | 0.00 | 37.72 | 27.88 | 0.00 | 0.00 | 9.84 |
| 318+50 | 31850.00 | 50.00 | 6.63 | 0.00 | 0.11 | 0.00 | 10.52 | 0.00 | 0.60 | 0.00 | 48.24 | 28.54 | 0.00 | 0.00 | 19.69 |
| 319+00 | 31900.00 | 50.00 | 7.17 | 0.00 | 0.10 | 0.00 | 12.78 | 0.00 | 0.19 | 0.00 | 61.02 | 28.76 | 0.00 | 0.00 | 32.26 |
| 319+50 | 31950.00 | 50.00 | 8.35 | 0.00 | 0.10 | 0.00 | 14.37 | 0.00 | 0.19 | 0.00 | 75.39 | 28.96 | 0.00 | 0.00 | 46.42 |
| 320+00 | 32000.00 | 50.00 | 8.89 | 0.00 | 0.09 | 0.00 | 15.96 | 0.00 | 0.18 | 0.00 | 91.35 | 29.15 | 0.00 | 0.00 | 62.19 |
| 320+50 | 32050.00 | 50.00 | 8.70 | 0.00 | 0.10 | 0.00 | 16.29 | 0.00 | 0.18 | 0.00 | 107.64 | 29.35 | 0.00 | 0.00 | 78.29 |
| 321+00 | 32100.00 | 50.00 | 8.18 | 0.00 | 0.10 | 0.00 | 15.63 | 0.00 | 0.19 | 0.00 | 123.27 | 29.55 | 0.00 | 0.00 | 93.71 |
| 321+50 | 32150.00 | 50.00 | 6.72 | 0.00 | 0.11 | 0.00 | 13.80 | 0.00 | 0.19 | 0.00 | 137.06 | 29.77 | 0.00 | 0.00 | 107.30 |
| 322+00 | 32200.00 | 50.00 | 5.09 | 0.00 | 0.48 | 0.00 | 10.94 | 0.00 | 0.55 | 0.00 | 148.00 | 30.37 | 0.00 | 0.00 | 117.63 |
| 322+50 | 32250.00 | 50.00 | 4.49 | 0.00 | 0.73 | 0.00 | 8.87 | 0.00 | 1.12 | 0.00 | 156.87 | 31.60 | 0.00 | 0.00 | 125.27 |
| 323+00 | 32300.00 | 50.00 | 3.00 | 0.00 | 3.81 | 0.00 | 6.94 | 0.00 | 4.20 | 0.00 | 163.80 | 36.22 | 0.00 | 0.00 | 127.58 |
| 323+50 | 32350.00 | 50.00 | 3.01 | 0.00 | 5.79 | 0.00 | 5.56 | 0.00 | 8.89 | 0.00 | 169.37 | 46.00 | 0.00 | 0.00 | 123.37 |
| 324+00 | 32400.00 | 50.00 | 2.39 | 0.00 | 7.53 | 0.00 | 5.00 | 0.00 | 12.33 | 0.00 | 174.37 | 59.57 | 0.00 | 0.00 | 114.80 |
| 324+50 | 32450.00 | 50.00 | 2.40 | 0.00 | 5.52 | 0.00 | 4.44 | 0.00 | 12.08 | 0.00 | 178.80 | 72.86 | 0.00 | 0.00 | 105.94 |
| 325+00 | 32500.00 | 50.00 | 2.40 | 0.00 | 2.17 | 0.00 | 4.44 | 0.00 | 7.12 | 0.00 | 183.25 | 80.69 | 0.00 | 0.00 | 102.56 |
| 325+50 | 32550.00 | 50.00 | 3.04 | 0.00 | 3.34 | 0.00 | 5.04 | 0.00 | 5.10 | 0.00 | 188.28 | 86.30 | 0.00 | 0.00 | 101.98 |
| 326+00 | 32600.00 | 50.00 | 3.05 | 0.00 | 3.32 | 0.00 | 5.64 | 0.00 | 6.17 | 0.00 | 193.92 | 93.09 | 0.00 | 0.00 | 100.84 |
| 326+50 | 32650.00 | 50.00 | 3.06 | 0.00 | 3.08 | 0.00 | 5.66 | 0.00 | 5.93 | 0.00 | 199.58 | 99.61 | 0.00 | 0.00 | 99.97 |
| 327+00 | 32700.00 | 50.00 | 3.04 | 0.00 | 2.62 | 0.00 | 5.65 | 0.00 | 5.28 | 0.00 | 205.23 | 105.41 | 0.00 | 0.00 | 99.82 |
| 327+50 | 32750.00 | 50.00 | 2.97 | 0.00 | 2.01 | 0.00 | 5.56 | 0.00 | 4.29 | 0.00 | 210.79 | 110.13 | 0.00 | 0.00 | 100.67 |
| 328+00 | 32800.00 | 50.00 | 2.89 | 0.00 | 1.25 | 0.00 | 5.43 | 0.00 | 3.02 | 0.00 | 216.22 | 113.45 | 0.00 | 0.00 | 102.77 |
| 328+50 | 32850.00 | 50.00 | 2.93 | 0.00 | 0.02 | 0.00 | 5.39 | 0.00 | 1.18 | 0.00 | 221.61 | 114.74 | 0.00 | 0.00 | 106.87 |
| 328+67 BK | 32866.66 | 16.66 | 2.82 | 0.00 | 0.00 | 0.00 | 1.77 | 0.00 | 0.01 | 0.00 | 223.38 | 114.75 | 0.00 | 0.00 | 108.63 |
| | | | | | Column totals | | 223.38 | 0.00 | 104.32 | 0.00 | | | | | |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4675
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

9

9

**Division 2 EWQ**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11+11 AH | 1111.10 | 0.00 | 8.00 | 0.00 | 2.62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11+50 | 1150.00 | 38.90 | 20.90 | 0.00 | 0.00 | 0.00 | 20.82 | 0.00 | 1.89 | 0.00 | 20.82 | 2.08 | 0.00 | 0.00 | 18.74 |
| 12+00 | 1200.00 | 50.00 | 19.86 | 0.00 | 0.93 | 0.00 | 37.74 | 0.00 | 0.86 | 0.00 | 58.56 | 3.02 | 0.00 | 0.00 | 55.54 |
| 12+50 | 1250.00 | 50.00 | 19.60 | 0.00 | 4.24 | 0.00 | 36.54 | 0.00 | 4.79 | 0.00 | 95.10 | 8.29 | 0.00 | 0.00 | 86.81 |
| 13+00 | 1300.00 | 50.00 | 20.79 | 0.00 | 5.58 | 0.00 | 37.40 | 0.00 | 9.09 | 0.00 | 132.49 | 18.29 | 0.00 | 0.00 | 114.20 |
| 13+50 | 1350.00 | 50.00 | 20.67 | 0.00 | 7.16 | 0.00 | 38.39 | 0.00 | 11.80 | 0.00 | 170.88 | 31.27 | 0.00 | 0.00 | 139.62 |
| 14+00 | 1400.00 | 50.00 | 20.74 | 0.00 | 13.53 | 0.00 | 38.34 | 0.00 | 19.16 | 0.00 | 209.23 | 52.34 | 0.00 | 0.00 | 156.89 |
| 14+50 | 1450.00 | 50.00 | 20.86 | 0.00 | 18.65 | 0.00 | 38.52 | 0.00 | 29.80 | 0.00 | 247.74 | 85.12 | 0.00 | 0.00 | 162.63 |
| 15+00 | 1500.00 | 50.00 | 21.31 | 0.00 | 13.99 | 0.00 | 39.05 | 0.00 | 30.22 | 0.00 | 286.79 | 118.36 | 0.00 | 0.00 | 168.43 |
| 15+50 | 1550.00 | 50.00 | 23.36 | 0.00 | 14.50 | 0.00 | 41.36 | 0.00 | 26.38 | 0.00 | 328.15 | 147.38 | 0.00 | 0.00 | 180.77 |
| 16+00 | 1600.00 | 50.00 | 23.57 | 0.00 | 13.10 | 0.00 | 43.45 | 0.00 | 25.56 | 0.00 | 371.61 | 175.49 | 0.00 | 0.00 | 196.12 |
| 16+41 BK | 1640.99 | 40.99 | 24.41 | 0.00 | 14.32 | 0.00 | 36.42 | 0.00 | 20.81 | 0.00 | 408.03 | 198.38 | 0.00 | 0.00 | 209.64 |
| | | Column totals | | | | | 408.03 | 0.00 | 180.35 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4676
September 14, 2015

**Division 2 EWR**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10+84 AH | 1083.62 | 0.00 | 0.00 | 0.00 | 12.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11+00 | 1100.00 | 16.38 | 0.00 | 0.00 | 19.85 | 0.00 | 0.00 | 0.00 | 9.92 | 0.00 | 0.00 | 10.91 | 0.00 | 0.00 | -10.91 |
| 11+50 | 1150.00 | 50.00 | 0.00 | 0.00 | 31.30 | 0.00 | 0.00 | 0.00 | 47.36 | 0.00 | 0.00 | 63.01 | 0.00 | 0.00 | -63.01 |
| 12+00 | 1200.00 | 50.00 | 1.08 | 0.00 | 11.31 | 0.00 | 1.00 | 0.00 | 39.45 | 0.00 | 1.00 | 106.41 | 0.00 | 0.00 | -105.41 |
| 12+50 | 1250.00 | 50.00 | 6.52 | 0.00 | 10.30 | 0.00 | 7.04 | 0.00 | 20.01 | 0.00 | 8.04 | 128.42 | 0.00 | 0.00 | -120.38 |
| 13+00 | 1300.00 | 50.00 | 6.31 | 0.00 | 11.67 | 0.00 | 11.88 | 0.00 | 20.34 | 0.00 | 19.92 | 150.80 | 0.00 | 0.00 | -130.88 |
| 13+50 | 1350.00 | 50.00 | 6.88 | 0.00 | 10.30 | 0.00 | 12.21 | 0.00 | 20.34 | 0.00 | 32.13 | 173.17 | 0.00 | 0.00 | -141.04 |
| 14+00 | 1400.00 | 50.00 | 7.44 | 0.00 | 9.70 | 0.00 | 13.26 | 0.00 | 18.52 | 0.00 | 45.39 | 193.54 | 0.00 | 0.00 | -148.16 |
| 14+50 | 1450.00 | 50.00 | 8.09 | 0.00 | 8.13 | 0.00 | 14.38 | 0.00 | 16.51 | 0.00 | 59.77 | 211.70 | 0.00 | 0.00 | -151.94 |
| 15+00 | 1500.00 | 50.00 | 8.80 | 0.00 | 8.13 | 0.00 | 15.64 | 0.00 | 15.06 | 0.00 | 75.41 | 228.27 | 0.00 | 0.00 | -152.86 |
| 15+50 | 1550.00 | 50.00 | 5.89 | 0.00 | 5.60 | 0.00 | 13.60 | 0.00 | 12.71 | 0.00 | 89.01 | 242.25 | 0.00 | 0.00 | -153.24 |
| 15+98 BK | 1598.09 | 48.09 | 3.95 | 0.00 | 0.00 | 0.00 | 8.76 | 0.00 | 4.99 | 0.00 | 97.77 | 247.74 | 0.00 | 0.00 | -149.96 |
| | | Column totals | | | | | 97.77 | 0.00 | 225.21 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4677
September 14, 2015

**Division 2 SWC**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10+89 AH | 1089.23 | 0.00 | 0.10 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11+00 | 1100.00 | 10.77 | 3.06 | 0.00 | 6.32 | 0.00 | 0.63 | 0.00 | 1.27 | 0.00 | 0.63 | 1.40 | 0.00 | 0.00 | -0.77 |
| 11+50 | 1150.00 | 50.00 | 4.19 | 0.00 | 22.77 | 0.00 | 6.71 | 0.00 | 26.94 | 0.00 | 7.34 | 31.02 | 0.00 | 0.00 | -23.68 |
| 12+00 | 1200.00 | 50.00 | 0.03 | 0.00 | 39.88 | 0.00 | 3.91 | 0.00 | 58.01 | 0.00 | 11.25 | 94.83 | 0.00 | 0.00 | -83.58 |
| 12+50 | 1250.00 | 50.00 | 0.00 | 0.00 | 24.66 | 0.00 | 0.03 | 0.00 | 59.76 | 0.00 | 11.28 | 160.57 | 0.00 | 0.00 | -149.29 |
| 13+00 | 1300.00 | 50.00 | 8.64 | 0.00 | 1.92 | 0.00 | 8.00 | 0.00 | 24.61 | 0.00 | 19.28 | 187.64 | 0.00 | 0.00 | -168.36 |
| 13+36 BK | 1335.72 | 35.72 | 37.69 | 0.00 | 0.00 | 0.00 | 30.65 | 0.00 | 1.27 | 0.00 | 49.92 | 189.04 | 0.00 | 0.00 | -139.11 |
| | | Column totals | | | | | 49.92 | 0.00 | 171.85 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4678
September 14, 2015


9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:30 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew53 PLOT SCALE : 1:1

**Division 2 SLC**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11+04 AH | 1104.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11+50 | 1150.00 | 45.70 | 0.00 | 0.00 | 39.22 | 0.00 | 0.00 | 0.00 | 33.19 | 0.00 | 0.00 | 36.51 | 0.00 | 0.00 | -36.51 |
| 12+00 | 1200.00 | 50.00 | 0.00 | 0.00 | 36.06 | 0.00 | 0.00 | 0.00 | 69.70 | 0.00 | 0.00 | 113.18 | 0.00 | 0.00 | -113.18 |
| 12+50 | 1250.00 | 50.00 | 4.91 | 0.00 | 37.51 | 0.00 | 4.55 | 0.00 | 68.12 | 0.00 | 4.55 | 188.12 | 0.00 | 0.00 | -183.57 |
| 13+00 | 1300.00 | 50.00 | 6.99 | 0.00 | 38.81 | 0.00 | 11.02 | 0.00 | 70.67 | 0.00 | 15.56 | 265.85 | 0.00 | 0.00 | -250.29 |
| 13+50 | 1350.00 | 50.00 | 6.91 | 0.00 | 45.48 | 0.00 | 12.87 | 0.00 | 78.05 | 0.00 | 28.44 | 351.70 | 0.00 | 0.00 | -323.27 |
| 14+00 | 1400.00 | 50.00 | 4.13 | 0.00 | 4.20 | 0.00 | 10.22 | 0.00 | 46.00 | 0.00 | 38.66 | 402.30 | 0.00 | 0.00 | -363.64 |
| 14+50 | 1450.00 | 50.00 | 1.52 | 0.00 | 0.00 | 0.00 | 5.23 | 0.00 | 3.89 | 0.00 | 43.89 | 406.58 | 0.00 | 0.00 | -362.69 |
| 14+54 BK | 1453.98 | 3.98 | 1.50 | 0.00 | 0.00 | 0.00 | 0.22 | 0.00 | 0.00 | 0.00 | 44.11 | 406.58 | 0.00 | 0.00 | -362.47 |
| | | Column totals | | | | | 44.11 | 0.00 | 369.62 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4679
September 14, 2015

**Division 3 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 206+00 AH | 20600.00 | 0.00 | 159.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 206+50 | 20650.00 | 50.00 | 168.30 | 0.00 | 0.00 | 0.00 | 303.56 | 0.00 | 0.00 | 0.00 | 303.56 | 0.00 | 0.00 | 0.00 | 303.56 |
| 207+00 | 20700.00 | 50.00 | 185.94 | 0.00 | 0.00 | 0.00 | 328.00 | 0.00 | 0.00 | 0.00 | 631.56 | 0.00 | 0.00 | 0.00 | 631.56 |
| 207+50 | 20750.00 | 50.00 | 188.20 | 0.00 | 0.00 | 0.00 | 346.43 | 0.00 | 0.00 | 0.00 | 977.98 | 0.00 | 0.00 | 0.00 | 977.98 |
| 208+00 | 20800.00 | 50.00 | 187.43 | 0.00 | 0.00 | 0.00 | 347.81 | 0.00 | 0.00 | 0.00 | 1325.79 | 0.00 | 0.00 | 0.00 | 1325.79 |
| 208+50 | 20850.00 | 50.00 | 189.07 | 0.00 | 0.00 | 0.00 | 348.61 | 0.00 | 0.00 | 0.00 | 1674.40 | 0.00 | 0.00 | 0.00 | 1674.40 |
| 208+50 | 20850.00 | 0.00 | 151.98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1674.40 | 0.00 | 0.00 | 0.00 | 1674.40 |
| 209+00 | 20900.00 | 50.00 | 155.39 | 0.00 | 0.00 | 0.00 | 284.60 | 0.00 | 0.00 | 0.00 | 1959.00 | 0.00 | 0.00 | 0.00 | 1959.00 |
| 209+50 | 20950.00 | 50.00 | 155.60 | 0.00 | 0.00 | 0.00 | 287.95 | 0.00 | 0.00 | 0.00 | 2246.95 | 0.00 | 0.00 | 0.00 | 2246.95 |
| 210+00 | 21000.00 | 50.00 | 159.33 | 0.00 | 0.00 | 0.00 | 291.60 | 0.00 | 0.00 | 0.00 | 2538.56 | 0.00 | 0.00 | 0.00 | 2538.56 |
| 210+50 | 21050.00 | 50.00 | 162.92 | 0.00 | 0.00 | 0.00 | 298.38 | 0.00 | 0.00 | 0.00 | 2836.94 | 0.00 | 0.00 | 0.00 | 2836.94 |
| 211+00 | 21100.00 | 50.00 | 166.27 | 0.00 | 0.00 | 0.00 | 304.81 | 0.00 | 0.00 | 0.00 | 3141.74 | 0.00 | 0.00 | 0.00 | 3141.74 |
| 211+50 | 21150.00 | 50.00 | 170.00 | 0.00 | 0.00 | 0.00 | 311.36 | 0.00 | 0.00 | 0.00 | 3453.10 | 0.00 | 0.00 | 0.00 | 3453.10 |
| 212+00 | 21200.00 | 50.00 | 168.16 | 0.00 | 0.00 | 0.00 | 313.11 | 0.00 | 0.00 | 0.00 | 3766.21 | 0.00 | 0.00 | 0.00 | 3766.21 |
| 212+50 | 21250.00 | 50.00 | 161.66 | 0.00 | 0.00 | 0.00 | 305.39 | 0.00 | 0.00 | 0.00 | 4071.60 | 0.00 | 0.00 | 0.00 | 4071.60 |
| 213+00 | 21300.00 | 50.00 | 153.16 | 0.00 | 0.00 | 0.00 | 291.50 | 0.00 | 0.00 | 0.00 | 4363.10 | 0.00 | 0.00 | 0.00 | 4363.10 |
| 213+50 | 21350.00 | 50.00 | 138.78 | 0.00 | 0.00 | 0.00 | 270.31 | 0.00 | 0.00 | 0.00 | 4633.42 | 0.00 | 0.00 | 0.00 | 4633.42 |
| 214+00 | 21400.00 | 50.00 | 119.64 | 0.00 | 0.00 | 0.00 | 239.28 | 0.00 | 0.00 | 0.00 | 4872.69 | 0.00 | 0.00 | 0.00 | 4872.69 |
| 214+50 | 21450.00 | 50.00 | 98.82 | 0.00 | 0.00 | 0.00 | 202.28 | 0.00 | 0.00 | 0.00 | 5074.97 | 0.00 | 0.00 | 0.00 | 5074.97 |
| 215+00 | 21500.00 | 50.00 | 82.22 | 0.00 | 0.00 | 0.00 | 167.63 | 0.00 | 0.00 | 0.00 | 5242.60 | 0.00 | 0.00 | 0.00 | 5242.60 |
| 215+50 | 21550.00 | 50.00 | 71.39 | 0.00 | 0.00 | 0.00 | 142.23 | 0.00 | 0.00 | 0.00 | 5384.83 | 0.00 | 0.00 | 0.00 | 5384.83 |
| 216+00 | 21600.00 | 50.00 | 61.46 | 0.00 | 0.00 | 0.00 | 123.01 | 0.00 | 0.00 | 0.00 | 5507.84 | 0.00 | 0.00 | 0.00 | 5507.84 |
| 216+50 | 21650.00 | 50.00 | 50.93 | 0.00 | 0.00 | 0.00 | 104.06 | 0.00 | 0.00 | 0.00 | 5611.91 | 0.00 | 0.00 | 0.00 | 5611.91 |
| 217+00 | 21700.00 | 50.00 | 36.51 | 0.00 | 0.00 | 0.00 | 80.96 | 0.00 | 0.00 | 0.00 | 5692.87 | 0.00 | 0.00 | 0.00 | 5692.87 |
| 217+50 | 21750.00 | 50.00 | 15.80 | 0.00 | 1.05 | 0.00 | 48.44 | 0.00 | 0.97 | 0.00 | 5741.31 | 1.07 | 0.00 | 0.00 | 5740.24 |
| 218+00 | 21800.00 | 50.00 | 5.74 | 0.00 | 13.70 | 0.00 | 19.94 | 0.00 | 13.66 | 0.00 | 5761.25 | 16.09 | 0.00 | 0.00 | 5745.16 |
| 218+50 | 21850.00 | 50.00 | 2.64 | 0.00 | 36.76 | 0.00 | 7.76 | 0.00 | 46.72 | 0.00 | 5769.01 | 67.49 | 0.00 | 0.00 | 5701.52 |
| 219+00 | 21900.00 | 50.00 | 1.28 | 0.00 | 68.11 | 0.00 | 3.63 | 0.00 | 97.10 | 0.00 | 5772.64 | 174.30 | 0.00 | 0.00 | 5598.34 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4680
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 3 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 219+00 | 21900.00 | 0.00 | 1.26 | 0.00 | 96.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5772.64 | 174.30 | 0.00 | 0.00 | 5598.34 |
| 219+50 | 21950.00 | 50.00 | 0.00 | 0.00 | 137.79 | 0.00 | 1.17 | 0.00 | 216.67 | 0.00 | 5773.81 | 412.63 | 0.00 | 0.00 | 5361.17 |
| 220+00 | 22000.00 | 50.00 | 0.00 | 0.00 | 169.49 | 0.00 | 0.00 | 0.00 | 284.52 | 0.00 | 5773.81 | 725.60 | 0.00 | 0.00 | 5048.20 |
| 220+50 | 22050.00 | 50.00 | 0.00 | 0.00 | 190.74 | 0.00 | 0.00 | 0.00 | 333.55 | 0.00 | 5773.81 | 1092.50 | 0.00 | 0.00 | 4681.30 |
| 221+00 | 22100.00 | 50.00 | 0.00 | 0.00 | 199.44 | 0.00 | 0.00 | 0.00 | 361.28 | 0.00 | 5773.81 | 1489.91 | 0.00 | 0.00 | 4283.90 |
| 221+50 | 22150.00 | 50.00 | 0.00 | 0.00 | 202.06 | 0.00 | 0.00 | 0.00 | 371.76 | 0.00 | 5773.81 | 1898.84 | 0.00 | 0.00 | 3874.96 |
| 222+00 | 22200.00 | 50.00 | 0.00 | 0.00 | 203.67 | 0.00 | 0.00 | 0.00 | 375.68 | 0.00 | 5773.81 | 2312.09 | 0.00 | 0.00 | 3461.72 |
| 222+50 | 22250.00 | 50.00 | 0.00 | 0.00 | 205.55 | 0.00 | 0.00 | 0.00 | 378.91 | 0.00 | 5773.81 | 2728.89 | 0.00 | 0.00 | 3044.92 |
| 223+00 | 22300.00 | 50.00 | 0.00 | 0.00 | 204.68 | 0.00 | 0.00 | 0.00 | 379.84 | 0.00 | 5773.81 | 3146.71 | 0.00 | 0.00 | 2627.09 |
| 223+50 | 22350.00 | 50.00 | 0.00 | 0.00 | 203.63 | 0.00 | 0.00 | 0.00 | 378.06 | 0.00 | 5773.81 | 3562.58 | 0.00 | 0.00 | 2211.22 |
| 224+00 | 22400.00 | 50.00 | 0.00 | 0.00 | 205.02 | 0.00 | 0.00 | 0.00 | 378.38 | 0.00 | 5773.81 | 3978.80 | 0.00 | 0.00 | 1795.00 |
| 224+50 | 22450.00 | 50.00 | 0.00 | 0.00 | 203.61 | 0.00 | 0.00 | 0.00 | 378.36 | 0.00 | 5773.81 | 4395.00 | 0.00 | 0.00 | 1378.81 |
| 225+00 | 22500.00 | 50.00 | 0.00 | 0.00 | 194.32 | 0.00 | 0.00 | 0.00 | 368.45 | 0.00 | 5773.81 | 4800.30 | 0.00 | 0.00 | 973.51 |
| 225+50 | 22550.00 | 50.00 | 0.00 | 0.00 | 176.41 | 0.00 | 0.00 | 0.00 | 343.27 | 0.00 | 5773.81 | 5177.89 | 0.00 | 0.00 | 595.91 |
| 226+00 | 22600.00 | 50.00 | 0.00 | 0.00 | 152.54 | 0.00 | 0.00 | 0.00 | 304.58 | 0.00 | 5773.81 | 5512.94 | 0.00 | 0.00 | 260.87 |
| 226+50 | 22650.00 | 50.00 | 0.00 | 0.00 | 125.85 | 0.00 | 0.00 | 0.00 | 257.77 | 0.00 | 5773.81 | 5796.48 | 0.00 | 0.00 | -22.68 |
| 227+00 | 22700.00 | 50.00 | 0.00 | 0.00 | 93.75 | 0.00 | 0.00 | 0.00 | 203.33 | 0.00 | 5773.81 | 6020.15 | 0.00 | 0.00 | -246.34 |
| 227+50 | 22750.00 | 50.00 | 0.00 | 0.00 | 53.69 | 0.00 | 0.00 | 0.00 | 136.52 | 0.00 | 5773.81 | 6170.32 | 0.00 | 0.00 | -396.51 |
| 228+00 | 22800.00 | 50.00 | 0.98 | 0.00 | 16.18 | 0.00 | 0.91 | 0.00 | 64.69 | 0.00 | 5774.71 | 6241.48 | 0.00 | 0.00 | -466.77 |
| 228+50 | 22850.00 | 50.00 | 20.48 | 0.00 | 0.00 | 0.00 | 19.87 | 0.00 | 14.98 | 0.00 | 5794.58 | 6257.96 | 0.00 | 0.00 | -463.38 |
| 228+77 | 22876.97 | 26.97 | 53.71 | 0.00 | 0.00 | 0.00 | 37.05 | 0.00 | 0.00 | 0.00 | 5831.64 | 6257.96 | 0.00 | 0.00 | -426.32 |
| 228+89 BK | 22889.28 | 12.31 | 0.00 | 0.00 | 0.00 | 0.00 | 12.24 | 0.00 | 0.00 | 0.00 | 5843.88 | 6257.96 | 0.00 | 0.00 | -414.08 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4681
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 3 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 230+77 AH | 23077.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 230+88 | 23088.21 | 10.78 | 0.00 | 0.00 | 362.72 | 0.00 | 0.00 | 0.00 | 72.41 | 0.00 | 0.00 | 79.65 | 0.00 | 0.00 | -79.65 |
| 231+00 | 23100.00 | 11.79 | 49.67 | 0.00 | 0.00 | 0.00 | 10.84 | 0.00 | 79.19 | 0.00 | 10.84 | 166.76 | 0.00 | 0.00 | -155.92 |
| 231+50 | 23150.00 | 50.00 | 9.77 | 0.00 | 0.23 | 0.00 | 55.04 | 0.00 | 0.21 | 0.00 | 65.88 | 167.00 | 0.00 | 0.00 | -101.12 |
| 232+00 | 23200.00 | 50.00 | 0.00 | 0.00 | 26.87 | 0.00 | 9.05 | 0.00 | 25.09 | 0.00 | 74.93 | 194.60 | 0.00 | 0.00 | -119.67 |
| 232+50 | 23250.00 | 50.00 | 0.00 | 0.00 | 65.98 | 0.00 | 0.00 | 0.00 | 85.97 | 0.00 | 74.93 | 289.17 | 0.00 | 0.00 | -214.24 |
| 233+00 | 23300.00 | 50.00 | 0.00 | 0.00 | 106.16 | 0.00 | 0.00 | 0.00 | 159.39 | 0.00 | 74.93 | 464.50 | 0.00 | 0.00 | -389.57 |
| 233+50 | 23350.00 | 50.00 | 0.00 | 0.00 | 141.92 | 0.00 | 0.00 | 0.00 | 229.70 | 0.00 | 74.93 | 717.17 | 0.00 | 0.00 | -642.24 |
| 234+00 | 23400.00 | 50.00 | 0.00 | 0.00 | 176.95 | 0.00 | 0.00 | 0.00 | 295.25 | 0.00 | 74.93 | 1041.95 | 0.00 | 0.00 | -967.02 |
| 234+50 | 23450.00 | 50.00 | 0.00 | 0.00 | 206.62 | 0.00 | 0.00 | 0.00 | 355.16 | 0.00 | 74.93 | 1432.62 | 0.00 | 0.00 | -1357.69 |
| 235+00 | 23500.00 | 50.00 | 0.00 | 0.00 | 229.66 | 0.00 | 0.00 | 0.00 | 403.96 | 0.00 | 74.93 | 1876.98 | 0.00 | 0.00 | -1802.05 |
| 235+50 | 23550.00 | 50.00 | 0.00 | 0.00 | 247.05 | 0.00 | 0.00 | 0.00 | 441.40 | 0.00 | 74.93 | 2362.52 | 0.00 | 0.00 | -2287.59 |
| 236+00 | 23600.00 | 50.00 | 0.00 | 0.00 | 255.97 | 0.00 | 0.00 | 0.00 | 465.76 | 0.00 | 74.93 | 2874.85 | 0.00 | 0.00 | -2799.92 |
| 236+50 | 23650.00 | 50.00 | 0.00 | 0.00 | 259.60 | 0.00 | 0.00 | 0.00 | 477.38 | 0.00 | 74.93 | 3399.97 | 0.00 | 0.00 | -3325.04 |
| 237+00 | 23700.00 | 50.00 | 0.00 | 0.00 | 257.90 | 0.00 | 0.00 | 0.00 | 479.17 | 0.00 | 74.93 | 3927.05 | 0.00 | 0.00 | -3852.12 |
| 237+50 | 23750.00 | 50.00 | 0.00 | 0.00 | 249.63 | 0.00 | 0.00 | 0.00 | 469.94 | 0.00 | 74.93 | 4443.98 | 0.00 | 0.00 | -4369.05 |
| 238+00 | 23800.00 | 50.00 | 0.00 | 0.00 | 231.44 | 0.00 | 0.00 | 0.00 | 445.44 | 0.00 | 74.93 | 4933.96 | 0.00 | 0.00 | -4859.03 |
| 238+50 | 23850.00 | 50.00 | 0.00 | 0.00 | 208.62 | 0.00 | 0.00 | 0.00 | 407.46 | 0.00 | 74.93 | 5382.17 | 0.00 | 0.00 | -5307.24 |
| 239+00 | 23900.00 | 50.00 | 0.00 | 0.00 | 178.45 | 0.00 | 0.00 | 0.00 | 358.40 | 0.00 | 74.93 | 5776.41 | 0.00 | 0.00 | -5701.48 |
| 239+00 | 23900.00 | 0.00 | 0.00 | 0.00 | 135.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 74.93 | 5776.41 | 0.00 | 0.00 | -5701.48 |
| 239+50 | 23950.00 | 50.00 | 0.00 | 0.00 | 109.54 | 0.00 | 0.00 | 0.00 | 227.30 | 0.00 | 74.93 | 6026.43 | 0.00 | 0.00 | -5951.51 |
| 240+00 | 24000.00 | 50.00 | 0.00 | 0.00 | 82.88 | 0.00 | 0.00 | 0.00 | 178.17 | 0.00 | 74.93 | 6222.42 | 0.00 | 0.00 | -6147.49 |
| 240+50 | 24050.00 | 50.00 | 0.00 | 0.00 | 59.09 | 0.00 | 0.00 | 0.00 | 131.45 | 0.00 | 74.93 | 6367.02 | 0.00 | 0.00 | -6292.09 |
| 241+00 | 24100.00 | 50.00 | 0.00 | 0.00 | 38.60 | 0.00 | 0.00 | 0.00 | 90.45 | 0.00 | 74.93 | 6466.51 | 0.00 | 0.00 | -6391.59 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4682
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 3 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 241+50 | 24150.00 | 50.00 | 5.68 | 0.00 | 21.62 | 0.00 | 5.26 | 0.00 | 55.76 | 0.00 | 80.19 | 6527.85 | 0.00 | 0.00 | -6447.66 |
| 242+00 | 24200.00 | 50.00 | 15.69 | 0.00 | 9.79 | 0.00 | 19.79 | 0.00 | 29.08 | 0.00 | 99.97 | 6559.84 | 0.00 | 0.00 | -6459.87 |
| 242+50 | 24250.00 | 50.00 | 31.73 | 0.00 | 1.71 | 0.00 | 43.91 | 0.00 | 10.65 | 0.00 | 143.88 | 6571.55 | 0.00 | 0.00 | -6427.67 |
| 243+00 | 24300.00 | 50.00 | 49.54 | 0.00 | 0.00 | 0.00 | 75.25 | 0.00 | 1.58 | 0.00 | 219.13 | 6573.30 | 0.00 | 0.00 | -6354.16 |
| 243+50 | 24350.00 | 50.00 | 65.02 | 0.00 | 0.81 | 0.00 | 106.07 | 0.00 | 0.75 | 0.00 | 325.21 | 6574.12 | 0.00 | 0.00 | -6248.92 |
| 244+00 | 24400.00 | 50.00 | 93.32 | 0.00 | 0.00 | 0.00 | 146.61 | 0.00 | 0.75 | 0.00 | 471.82 | 6574.95 | 0.00 | 0.00 | -6103.13 |
| 244+50 | 24450.00 | 50.00 | 96.75 | 0.00 | 0.00 | 0.00 | 175.99 | 0.00 | 0.00 | 0.00 | 647.81 | 6574.95 | 0.00 | 0.00 | -5927.14 |
| 245+00 | 24500.00 | 50.00 | 121.02 | 0.00 | 0.48 | 0.00 | 201.64 | 0.00 | 0.44 | 0.00 | 849.45 | 6575.44 | 0.00 | 0.00 | -5725.99 |
| 245+50 | 24550.00 | 50.00 | 144.04 | 0.00 | 0.00 | 0.00 | 245.43 | 0.00 | 0.44 | 0.00 | 1094.87 | 6575.92 | 0.00 | 0.00 | -5481.05 |
| 246+00 | 24600.00 | 50.00 | 163.39 | 0.00 | 0.00 | 0.00 | 284.66 | 0.00 | 0.00 | 0.00 | 1379.53 | 6575.92 | 0.00 | 0.00 | -5196.39 |
| 246+50 | 24650.00 | 50.00 | 185.81 | 0.00 | 0.00 | 0.00 | 323.33 | 0.00 | 0.00 | 0.00 | 1702.86 | 6575.92 | 0.00 | 0.00 | -4873.06 |
| 247+00 | 24700.00 | 50.00 | 209.09 | 0.00 | 0.00 | 0.00 | 365.65 | 0.00 | 0.00 | 0.00 | 2068.51 | 6575.92 | 0.00 | 0.00 | -4507.41 |
| 247+50 | 24750.00 | 50.00 | 226.47 | 0.00 | 0.00 | 0.00 | 403.30 | 0.00 | 0.00 | 0.00 | 2471.81 | 6575.92 | 0.00 | 0.00 | -4104.12 |
| 248+00 | 24800.00 | 50.00 | 231.35 | 0.00 | 0.00 | 0.00 | 423.91 | 0.00 | 0.00 | 0.00 | 2895.71 | 6575.92 | 0.00 | 0.00 | -3680.21 |
| 248+50 | 24850.00 | 50.00 | 228.99 | 0.00 | 0.00 | 0.00 | 426.24 | 0.00 | 0.00 | 0.00 | 3321.96 | 6575.92 | 0.00 | 0.00 | -3253.97 |
| 249+00 | 24900.00 | 50.00 | 226.36 | 0.00 | 0.00 | 0.00 | 421.62 | 0.00 | 0.00 | 0.00 | 3743.58 | 6575.92 | 0.00 | 0.00 | -2832.35 |
| 249+50 | 24950.00 | 50.00 | 221.20 | 0.00 | 0.00 | 0.00 | 414.41 | 0.00 | 0.00 | 0.00 | 4157.98 | 6575.92 | 0.00 | 0.00 | -2417.94 |
| 250+00 | 25000.00 | 50.00 | 218.41 | 0.00 | 0.00 | 0.00 | 407.05 | 0.00 | 0.00 | 0.00 | 4565.03 | 6575.92 | 0.00 | 0.00 | -2010.89 |
| 250+50 | 25050.00 | 50.00 | 213.50 | 0.00 | 0.00 | 0.00 | 399.92 | 0.00 | 0.00 | 0.00 | 4964.95 | 6575.92 | 0.00 | 0.00 | -1610.98 |
| 251+00 | 25100.00 | 50.00 | 209.90 | 0.00 | 0.00 | 0.00 | 392.04 | 0.00 | 0.00 | 0.00 | 5356.98 | 6575.92 | 0.00 | 0.00 | -1218.94 |
| 251+50 | 25150.00 | 50.00 | 206.88 | 0.00 | 0.00 | 0.00 | 385.91 | 0.00 | 0.00 | 0.00 | 5742.89 | 6575.92 | 0.00 | 0.00 | -833.03 |
| 251+50 | 25150.00 | 0.00 | 270.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5742.89 | 6575.92 | 0.00 | 0.00 | -833.03 |
| 252+00 | 25200.00 | 50.00 | 266.92 | 0.00 | 0.00 | 0.00 | 497.30 | 0.00 | 0.00 | 0.00 | 6240.19 | 6575.92 | 0.00 | 0.00 | -335.74 |
| 252+50 | 25250.00 | 50.00 | 256.61 | 0.00 | 0.00 | 0.00 | 484.75 | 0.00 | 0.00 | 0.00 | 6724.94 | 6575.92 | 0.00 | 0.00 | 149.01 |
| 253+00 | 25300.00 | 50.00 | 250.78 | 0.00 | 0.00 | 0.00 | 469.81 | 0.00 | 0.00 | 0.00 | 7194.74 | 6575.92 | 0.00 | 0.00 | 618.82 |
| 253+50 | 25350.00 | 50.00 | 245.27 | 0.00 | 0.00 | 0.00 | 459.31 | 0.00 | 0.00 | 0.00 | 7654.05 | 6575.92 | 0.00 | 0.00 | 1078.12 |
| 254+00 | 25400.00 | 50.00 | 239.61 | 0.00 | 0.00 | 0.00 | 448.96 | 0.00 | 0.00 | 0.00 | 8103.01 | 6575.92 | 0.00 | 0.00 | 1527.09 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4683
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 3 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) | | | | Incremental Vol (CY) (Unadjusted) | | | | Cumulative Vol (CY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut 1.0 | Expanded Fill 1.1 | Expanded EBS Backfill 1.3 | Reduced EBS In Fill 0.8 | Mass Ordinate |
| | | | | | | | Note 1 | Note 2 | Note 3 | | | | Note 4 | Note 5 | Note 6 |
| 254+50 | 25450.00 | 50.00 | 243.64 | 0.00 | 0.00 | 0.00 | 447.45 | 0.00 | 0.00 | 0.00 | 8550.46 | 6575.92 | 0.00 | 0.00 | 1974.54 |
| 255+00 | 25500.00 | 50.00 | 239.43 | 0.00 | 0.00 | 0.00 | 447.29 | 0.00 | 0.00 | 0.00 | 8997.75 | 6575.92 | 0.00 | 0.00 | 2421.83 |
| 255+50 | 25550.00 | 50.00 | 238.42 | 0.00 | 0.00 | 0.00 | 442.45 | 0.00 | 0.00 | 0.00 | 9440.21 | 6575.92 | 0.00 | 0.00 | 2864.28 |
| 255+50 | 25550.00 | 0.00 | 182.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9440.21 | 6575.92 | 0.00 | 0.00 | 2864.28 |
| 256+00 | 25600.00 | 50.00 | 176.68 | 0.00 | 0.00 | 0.00 | 332.31 | 0.00 | 0.00 | 0.00 | 9772.52 | 6575.92 | 0.00 | 0.00 | 3196.60 |
| 256+50 | 25650.00 | 50.00 | 174.98 | 0.00 | 0.00 | 0.00 | 325.61 | 0.00 | 0.00 | 0.00 | 10098.13 | 6575.92 | 0.00 | 0.00 | 3522.21 |
| 257+00 | 25700.00 | 50.00 | 171.78 | 0.00 | 0.00 | 0.00 | 321.07 | 0.00 | 0.00 | 0.00 | 10419.21 | 6575.92 | 0.00 | 0.00 | 3843.28 |
| 257+50 | 25750.00 | 50.00 | 169.27 | 0.00 | 0.00 | 0.00 | 315.79 | 0.00 | 0.00 | 0.00 | 10734.99 | 6575.92 | 0.00 | 0.00 | 4159.07 |
| 258+00 | 25800.00 | 50.00 | 164.76 | 0.00 | 0.00 | 0.00 | 309.29 | 0.00 | 0.00 | 0.00 | 11044.28 | 6575.92 | 0.00 | 0.00 | 4468.36 |
| 258+50 | 25850.00 | 50.00 | 160.32 | 0.00 | 0.00 | 0.00 | 301.00 | 0.00 | 0.00 | 0.00 | 11345.28 | 6575.92 | 0.00 | 0.00 | 4769.36 |
| 259+00 | 25900.00 | 50.00 | 157.97 | 0.00 | 0.00 | 0.00 | 294.71 | 0.00 | 0.00 | 0.00 | 11639.99 | 6575.92 | 0.00 | 0.00 | 5064.07 |
| 259+50 | 25950.00 | 50.00 | 147.36 | 0.00 | 0.00 | 0.00 | 282.71 | 0.00 | 0.00 | 0.00 | 11922.71 | 6575.92 | 0.00 | 0.00 | 5346.78 |
| 260+00 | 26000.00 | 50.00 | 131.40 | 0.00 | 0.00 | 0.00 | 258.11 | 0.00 | 0.00 | 0.00 | 12180.82 | 6575.92 | 0.00 | 0.00 | 5604.89 |
| 260+50 | 26050.00 | 50.00 | 117.99 | 0.00 | 0.00 | 0.00 | 230.92 | 0.00 | 0.00 | 0.00 | 12411.73 | 6575.92 | 0.00 | 0.00 | 5835.81 |
| 261+00 | 26100.00 | 50.00 | 111.14 | 0.00 | 0.00 | 0.00 | 212.16 | 0.00 | 0.00 | 0.00 | 12623.89 | 6575.92 | 0.00 | 0.00 | 6047.97 |
| 261+50 | 26150.00 | 50.00 | 112.45 | 0.00 | 0.00 | 0.00 | 207.03 | 0.00 | 0.00 | 0.00 | 12830.92 | 6575.92 | 0.00 | 0.00 | 6254.99 |
| 262+00 | 26200.00 | 50.00 | 103.86 | 0.00 | 0.00 | 0.00 | 200.29 | 0.00 | 0.00 | 0.00 | 13031.21 | 6575.92 | 0.00 | 0.00 | 6455.28 |
| 262+50 | 26250.00 | 50.00 | 99.20 | 0.00 | 0.00 | 0.00 | 188.02 | 0.00 | 0.00 | 0.00 | 13219.22 | 6575.92 | 0.00 | 0.00 | 6643.30 |
| 263+00 | 26300.00 | 50.00 | 96.26 | 0.00 | 0.00 | 0.00 | 180.98 | 0.00 | 0.00 | 0.00 | 13400.21 | 6575.92 | 0.00 | 0.00 | 6824.28 |
| 263+50 | 26350.00 | 50.00 | 90.61 | 0.00 | 0.00 | 0.00 | 173.03 | 0.00 | 0.00 | 0.00 | 13573.23 | 6575.92 | 0.00 | 0.00 | 6997.31 |
| 264+00 | 26400.00 | 50.00 | 86.64 | 0.00 | 0.00 | 0.00 | 164.12 | 0.00 | 0.00 | 0.00 | 13737.35 | 6575.92 | 0.00 | 0.00 | 7161.43 |
| 264+50 | 26450.00 | 50.00 | 86.37 | 0.00 | 0.00 | 0.00 | 160.19 | 0.00 | 0.00 | 0.00 | 13897.55 | 6575.92 | 0.00 | 0.00 | 7321.62 |
| 265+00 | 26500.00 | 50.00 | 84.44 | 0.00 | 0.00 | 0.00 | 158.16 | 0.00 | 0.00 | 0.00 | 14055.71 | 6575.92 | 0.00 | 0.00 | 7479.78 |
| 265+06 | 26506.00 | 6.00 | 84.19 | 0.00 | 0.00 | 0.00 | 18.74 | 0.00 | 0.00 | 0.00 | 14074.44 | 6575.92 | 0.00 | 0.00 | 7498.52 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4684
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:30 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew59 PLOT SCALE : 1:1

(CONTINUED)

**Division 3 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) | | | | Incremental Vol (CY) (Unadjusted) | | | | Cumulative Vol (CY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut 1.0 | Expanded Fill 1.1 | Expanded EBS Backfill 1.3 | Reduced EBS In Fill 0.8 | Mass Ordinate |
| | | | | | | | Note 1 | Note 2 | Note 3 | | | | Note 4 | Note 5 | Note 6 |
| 265+06 | 26506.00 | 0.00 | 88.65 | 0.00 | 44.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 14074.44 | 6575.92 | 0.00 | 0.00 | 7498.52 |
| 265+50 | 26550.00 | 44.00 | 97.25 | 0.00 | 28.88 | 0.00 | 151.47 | 0.00 | 59.99 | 0.00 | 14225.92 | 6641.92 | 0.00 | 0.00 | 7584.00 |
| 266+00 | 26600.00 | 50.00 | 93.13 | 0.00 | 24.79 | 0.00 | 176.28 | 0.00 | 49.69 | 0.00 | 14402.19 | 6696.58 | 0.00 | 0.00 | 7705.61 |
| 266+50 | 26650.00 | 50.00 | 88.47 | 0.00 | 37.87 | 0.00 | 168.15 | 0.00 | 58.02 | 0.00 | 14570.34 | 6760.40 | 0.00 | 0.00 | 7809.94 |
| 267+00 | 26700.00 | 50.00 | 84.53 | 0.00 | 42.31 | 0.00 | 160.19 | 0.00 | 74.24 | 0.00 | 14730.53 | 6842.07 | 0.00 | 0.00 | 7888.46 |
| 267+50 | 26750.00 | 50.00 | 81.57 | 0.00 | 38.28 | 0.00 | 153.80 | 0.00 | 74.62 | 0.00 | 14884.32 | 6924.15 | 0.00 | 0.00 | 7960.17 |
| 268+00 | 26800.00 | 50.00 | 68.59 | 0.00 | 39.23 | 0.00 | 139.04 | 0.00 | 71.77 | 0.00 | 15023.36 | 7003.10 | 0.00 | 0.00 | 8020.27 |
| 268+16 | 26816.00 | 16.00 | 63.67 | 0.00 | 41.47 | 0.00 | 39.19 | 0.00 | 23.91 | 0.00 | 15062.55 | 7029.40 | 0.00 | 0.00 | 8033.15 |
| 268+16 | 26816.00 | 0.00 | 64.46 | 0.00 | 83.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 15062.55 | 7029.40 | 0.00 | 0.00 | 8033.15 |
| 268+50 | 26850.00 | 34.00 | 53.65 | 0.00 | 106.72 | 0.00 | 74.37 | 0.00 | 120.02 | 0.00 | 15136.91 | 7161.42 | 0.00 | 0.00 | 7975.50 |
| 269+00 | 26900.00 | 50.00 | 38.11 | 0.00 | 125.86 | 0.00 | 84.96 | 0.00 | 215.35 | 0.00 | 15221.88 | 7398.31 | 0.00 | 0.00 | 7823.57 |
| 269+50 | 26950.00 | 50.00 | 28.84 | 0.00 | 148.96 | 0.00 | 61.99 | 0.00 | 254.46 | 0.00 | 15283.87 | 7678.22 | 0.00 | 0.00 | 7605.65 |
| 270+00 | 27000.00 | 50.00 | 22.35 | 0.00 | 166.41 | 0.00 | 47.40 | 0.00 | 292.01 | 0.00 | 15331.27 | 7999.43 | 0.00 | 0.00 | 7331.84 |
| 270+50 | 27050.00 | 50.00 | 16.35 | 0.00 | 169.59 | 0.00 | 35.83 | 0.00 | 311.11 | 0.00 | 15367.10 | 8341.65 | 0.00 | 0.00 | 7025.45 |
| 271+00 | 27100.00 | 50.00 | 11.42 | 0.00 | 154.10 | 0.00 | 25.71 | 0.00 | 299.71 | 0.00 | 15392.81 | 8671.33 | 0.00 | 0.00 | 6721.48 |
| 271+50 | 27150.00 | 50.00 | 6.16 | 0.00 | 145.37 | 0.00 | 16.28 | 0.00 | 277.29 | 0.00 | 15409.09 | 8976.35 | 0.00 | 0.00 | 6432.74 |
| 271+50 | 27150.00 | 0.00 | 6.24 | 0.00 | 28.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 15409.09 | 8976.35 | 0.00 | 0.00 | 6432.74 |
| 272+00 | 27200.00 | 50.00 | 4.61 | 0.00 | 35.86 | 0.00 | 10.05 | 0.00 | 59.20 | 0.00 | 15419.14 | 9041.47 | 0.00 | 0.00 | 6377.66 |
| 272+50 | 27250.00 | 50.00 | 5.38 | 0.00 | 37.73 | 0.00 | 9.25 | 0.00 | 68.14 | 0.00 | 15428.39 | 9116.42 | 0.00 | 0.00 | 6311.96 |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4685
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 3 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 272+50 | 27250.00 | 0.00 | 5.43 | 0.00 | 37.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 15428.39 | 9116.42 | 0.00 | 0.00 | 6311.96 |
| 273+00 | 27300.00 | 50.00 | 10.59 | 0.00 | 28.96 | 0.00 | 14.83 | 0.00 | 61.63 | 0.00 | 15443.22 | 9184.22 | 0.00 | 0.00 | 6259.00 |
| 273+50 | 27350.00 | 50.00 | 25.72 | 0.00 | 28.04 | 0.00 | 33.62 | 0.00 | 52.78 | 0.00 | 15476.84 | 9242.27 | 0.00 | 0.00 | 6234.57 |
| 274+00 | 27400.00 | 50.00 | 52.27 | 0.00 | 21.37 | 0.00 | 72.21 | 0.00 | 45.75 | 0.00 | 15549.05 | 9292.60 | 0.00 | 0.00 | 6256.46 |
| 274+50 | 27450.00 | 50.00 | 78.97 | 0.00 | 18.92 | 0.00 | 121.52 | 0.00 | 37.31 | 0.00 | 15670.57 | 9333.63 | 0.00 | 0.00 | 6336.94 |
| 275+00 | 27500.00 | 50.00 | 102.67 | 0.00 | 11.94 | 0.00 | 168.19 | 0.00 | 28.57 | 0.00 | 15838.76 | 9365.07 | 0.00 | 0.00 | 6473.69 |
| 275+50 | 27550.00 | 50.00 | 119.81 | 0.00 | 7.41 | 0.00 | 206.00 | 0.00 | 17.92 | 0.00 | 16044.76 | 9384.77 | 0.00 | 0.00 | 6659.98 |
| 276+00 | 27600.00 | 50.00 | 146.11 | 0.00 | 0.12 | 0.00 | 246.22 | 0.00 | 6.97 | 0.00 | 16290.98 | 9392.44 | 0.00 | 0.00 | 6898.54 |
| 276+00 | 27600.00 | 0.00 | 19.13 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 16290.98 | 9392.44 | 0.00 | 0.00 | 6898.54 |
| 276+50 | 27650.00 | 50.00 | 33.53 | 0.00 | 0.00 | 0.00 | 48.76 | 0.00 | 0.05 | 0.00 | 16339.74 | 9392.49 | 0.00 | 0.00 | 6947.24 |
| 277+00 | 27700.00 | 50.00 | 30.72 | 0.00 | 0.00 | 0.00 | 59.49 | 0.00 | 0.00 | 0.00 | 16399.23 | 9392.49 | 0.00 | 0.00 | 7006.73 |
| 277+43 | 27743.00 | 43.00 | 33.19 | 0.00 | 0.00 | 0.00 | 50.89 | 0.00 | 0.00 | 0.00 | 16450.12 | 9392.49 | 0.00 | 0.00 | 7057.63 |
| 277+43 | 27743.00 | 0.00 | 72.90 | 0.00 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 16450.12 | 9392.49 | 0.00 | 0.00 | 7057.63 |
| 277+50 | 27750.00 | 7.00 | 75.23 | 0.00 | 0.20 | 0.00 | 19.20 | 0.00 | 0.05 | 0.00 | 16469.32 | 9392.55 | 0.00 | 0.00 | 7076.77 |
| 278+00 | 27800.00 | 50.00 | 78.06 | 0.00 | 1.15 | 0.00 | 141.94 | 0.00 | 1.25 | 0.00 | 16611.26 | 9393.93 | 0.00 | 0.00 | 7217.33 |
| 278+30 BK | 27830.00 | 30.00 | 83.21 | 0.00 | 0.00 | 0.00 | 89.59 | 0.00 | 0.64 | 0.00 | 16700.85 | 9394.63 | 0.00 | 0.00 | 7306.22 |
| | | | | | | Column totals | 22544.73 | 0.00 | 14229.63 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4686
September 14, 2015

**Division 3 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 312+00 AH | 31200.00 | 0.00 | 347.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 312+50 | 31250.00 | 50.00 | 328.68 | 0.00 | 0.00 | 0.00 | 625.88 | 0.00 | 0.00 | 0.00 | 625.88 | 0.00 | 0.00 | 0.00 | 625.88 |
| 313+00 | 31300.00 | 50.00 | 302.74 | 0.00 | 0.00 | 0.00 | 584.65 | 0.00 | 0.00 | 0.00 | 1210.53 | 0.00 | 0.00 | 0.00 | 1210.53 |
| 313+00 | 31300.00 | 0.00 | 514.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1210.53 | 0.00 | 0.00 | 0.00 | 1210.53 |
| 313+50 | 31350.00 | 50.00 | 476.90 | 0.00 | 0.00 | 0.00 | 917.67 | 0.00 | 0.00 | 0.00 | 2128.19 | 0.00 | 0.00 | 0.00 | 2128.19 |
| 314+00 | 31400.00 | 50.00 | 440.95 | 0.00 | 0.00 | 0.00 | 849.86 | 0.00 | 0.00 | 0.00 | 2978.06 | 0.00 | 0.00 | 0.00 | 2978.06 |
| 314+50 | 31450.00 | 50.00 | 404.39 | 0.00 | 0.00 | 0.00 | 782.72 | 0.00 | 0.00 | 0.00 | 3760.78 | 0.00 | 0.00 | 0.00 | 3760.78 |
| 315+00 | 31500.00 | 50.00 | 366.14 | 0.00 | 0.00 | 0.00 | 713.45 | 0.00 | 0.00 | 0.00 | 4474.23 | 0.00 | 0.00 | 0.00 | 4474.23 |
| 315+50 | 31550.00 | 50.00 | 335.18 | 0.00 | 0.00 | 0.00 | 649.37 | 0.00 | 0.00 | 0.00 | 5123.60 | 0.00 | 0.00 | 0.00 | 5123.60 |
| 316+00 | 31600.00 | 50.00 | 294.45 | 0.00 | 0.00 | 0.00 | 582.99 | 0.00 | 0.00 | 0.00 | 5706.59 | 0.00 | 0.00 | 0.00 | 5706.59 |
| 316+50 | 31650.00 | 50.00 | 255.36 | 0.00 | 0.00 | 0.00 | 509.08 | 0.00 | 0.00 | 0.00 | 6215.68 | 0.00 | 0.00 | 0.00 | 6215.68 |
| 317+00 | 31700.00 | 50.00 | 218.29 | 0.00 | 0.00 | 0.00 | 438.56 | 0.00 | 0.00 | 0.00 | 6654.24 | 0.00 | 0.00 | 0.00 | 6654.24 |
| 317+50 | 31750.00 | 50.00 | 183.34 | 0.00 | 0.00 | 0.00 | 371.88 | 0.00 | 0.00 | 0.00 | 7026.12 | 0.00 | 0.00 | 0.00 | 7026.12 |
| 318+00 | 31800.00 | 50.00 | 153.80 | 0.00 | 0.00 | 0.00 | 312.17 | 0.00 | 0.00 | 0.00 | 7338.29 | 0.00 | 0.00 | 0.00 | 7338.29 |
| 318+50 | 31850.00 | 50.00 | 137.45 | 0.00 | 0.00 | 0.00 | 269.68 | 0.00 | 0.00 | 0.00 | 7607.96 | 0.00 | 0.00 | 0.00 | 7607.96 |
| 319+00 | 31900.00 | 50.00 | 115.14 | 0.00 | 0.00 | 0.00 | 233.88 | 0.00 | 0.00 | 0.00 | 7841.84 | 0.00 | 0.00 | 0.00 | 7841.84 |
| 319+50 | 31950.00 | 50.00 | 94.42 | 0.00 | 0.00 | 0.00 | 194.04 | 0.00 | 0.00 | 0.00 | 8035.88 | 0.00 | 0.00 | 0.00 | 8035.88 |
| 320+00 | 32000.00 | 50.00 | 81.28 | 0.00 | 0.00 | 0.00 | 162.69 | 0.00 | 0.00 | 0.00 | 8198.56 | 0.00 | 0.00 | 0.00 | 8198.56 |
| 320+50 BK | 32050.00 | 50.00 | 90.83 | 0.00 | 0.00 | 0.00 | 159.36 | 0.00 | 0.00 | 0.00 | 8357.93 | 0.00 | 0.00 | 0.00 | 8357.93 |
| | | | | | Column totals | | 8357.93 | 0.00 | 0.00 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4687
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:30 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew62 PLOT SCALE : 1:1

**Division 3 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) | | | | Incremental Vol (CY) (Unadjusted) | | | | Cumulative Vol (CY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Expanded Fill | Expanded EBS Backfill | Reduced EBS In Fill | Mass Ordinate |
| | | | | | | | Note 1 | Note 2 | Note 3 | | 1.0 | 1.1 | 1.3 Note 4 | 0.8 Note 5 | Note 6 |
| 320+50 AH | 32050.00 | 0.00 | 90.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 321+00 | 32100.00 | 50.00 | 110.33 | 0.00 | 0.00 | 0.00 | 186.24 | 0.00 | 0.00 | 0.00 | 186.24 | 0.00 | 0.00 | 0.00 | 186.24 |
| 321+50 | 32150.00 | 50.00 | 143.83 | 0.00 | 0.00 | 0.00 | 235.33 | 0.00 | 0.00 | 0.00 | 421.57 | 0.00 | 0.00 | 0.00 | 421.57 |
| 322+00 | 32200.00 | 50.00 | 172.58 | 0.00 | 0.00 | 0.00 | 292.97 | 0.00 | 0.00 | 0.00 | 714.55 | 0.00 | 0.00 | 0.00 | 714.55 |
| 322+50 | 32250.00 | 50.00 | 194.81 | 0.00 | 0.00 | 0.00 | 340.18 | 0.00 | 0.00 | 0.00 | 1054.72 | 0.00 | 0.00 | 0.00 | 1054.72 |
| 323+00 | 32300.00 | 50.00 | 223.34 | 0.00 | 0.00 | 0.00 | 387.18 | 0.00 | 0.00 | 0.00 | 1441.90 | 0.00 | 0.00 | 0.00 | 1441.90 |
| 323+50 | 32350.00 | 50.00 | 239.90 | 0.00 | 0.00 | 0.00 | 428.93 | 0.00 | 0.00 | 0.00 | 1870.82 | 0.00 | 0.00 | 0.00 | 1870.82 |
| 324+00 | 32400.00 | 50.00 | 255.60 | 0.00 | 0.00 | 0.00 | 458.80 | 0.00 | 0.00 | 0.00 | 2329.62 | 0.00 | 0.00 | 0.00 | 2329.62 |
| 324+50 | 32450.00 | 50.00 | 273.94 | 0.00 | 0.00 | 0.00 | 490.31 | 0.00 | 0.00 | 0.00 | 2819.94 | 0.00 | 0.00 | 0.00 | 2819.94 |
| 325+00 | 32500.00 | 50.00 | 305.81 | 0.00 | 0.00 | 0.00 | 536.81 | 0.00 | 0.00 | 0.00 | 3356.74 | 0.00 | 0.00 | 0.00 | 3356.74 |
| 325+50 | 32550.00 | 50.00 | 345.71 | 0.00 | 0.00 | 0.00 | 603.26 | 0.00 | 0.00 | 0.00 | 3960.00 | 0.00 | 0.00 | 0.00 | 3960.00 |
| 326+00 | 32600.00 | 50.00 | 374.52 | 0.00 | 0.00 | 0.00 | 666.88 | 0.00 | 0.00 | 0.00 | 4626.88 | 0.00 | 0.00 | 0.00 | 4626.88 |
| 326+50 | 32650.00 | 50.00 | 411.50 | 0.00 | 0.00 | 0.00 | 727.80 | 0.00 | 0.00 | 0.00 | 5354.68 | 0.00 | 0.00 | 0.00 | 5354.68 |
| 327+00 | 32700.00 | 50.00 | 449.27 | 0.00 | 0.00 | 0.00 | 797.01 | 0.00 | 0.00 | 0.00 | 6151.69 | 0.00 | 0.00 | 0.00 | 6151.69 |
| 327+00 | 32700.00 | 0.00 | 246.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6151.69 | 0.00 | 0.00 | 0.00 | 6151.69 |
| 327+50 | 32750.00 | 50.00 | 273.81 | 0.00 | 0.00 | 0.00 | 481.98 | 0.00 | 0.00 | 0.00 | 6633.67 | 0.00 | 0.00 | 0.00 | 6633.67 |
| 328+00 | 32800.00 | 50.00 | 291.08 | 0.00 | 0.00 | 0.00 | 523.05 | 0.00 | 0.00 | 0.00 | 7156.71 | 0.00 | 0.00 | 0.00 | 7156.71 |
| 328+00 | 32800.00 | 0.00 | 146.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7156.71 | 0.00 | 0.00 | 0.00 | 7156.71 |
| 328+50 | 32850.00 | 50.00 | 151.63 | 0.00 | 0.00 | 0.00 | 275.81 | 0.00 | 0.00 | 0.00 | 7432.53 | 0.00 | 0.00 | 0.00 | 7432.53 |
| 329+00 | 32900.00 | 50.00 | 128.73 | 0.00 | 0.00 | 0.00 | 259.59 | 0.00 | 0.00 | 0.00 | 7692.12 | 0.00 | 0.00 | 0.00 | 7692.12 |
| 329+50 | 32950.00 | 50.00 | 118.11 | 0.00 | 0.00 | 0.00 | 228.56 | 0.00 | 0.00 | 0.00 | 7920.68 | 0.00 | 0.00 | 0.00 | 7920.68 |
| 330+00 BK | 33000.00 | 50.00 | 120.32 | 0.00 | 0.00 | 0.00 | 220.77 | 0.00 | 0.00 | 0.00 | 8141.44 | 0.00 | 0.00 | 0.00 | 8141.44 |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4688
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 3 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Expanded Fill 1.1 | Expanded EBS Backfill 1.3 Note 4 | Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349+50 AH | 34950.00 | 0.00 | 18.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 350+00 | 35000.00 | 50.00 | 14.11 | 0.00 | 0.00 | 0.00 | 29.92 | 0.00 | 0.00 | 0.00 | 29.92 | 0.00 | 0.00 | 0.00 | 29.92 |
| 350+50 | 35050.00 | 50.00 | 11.56 | 0.00 | 0.00 | 0.00 | 23.77 | 0.00 | 0.00 | 0.00 | 53.69 | 0.00 | 0.00 | 0.00 | 53.69 |
| 351+00 | 35100.00 | 50.00 | 11.95 | 0.00 | 0.00 | 0.00 | 21.77 | 0.00 | 0.00 | 0.00 | 75.45 | 0.00 | 0.00 | 0.00 | 75.45 |
| 351+50 | 35150.00 | 50.00 | 15.02 | 0.00 | 0.00 | 0.00 | 24.97 | 0.00 | 0.00 | 0.00 | 100.43 | 0.00 | 0.00 | 0.00 | 100.43 |
| 352+00 | 35200.00 | 50.00 | 20.12 | 0.00 | 0.00 | 0.00 | 32.54 | 0.00 | 0.00 | 0.00 | 132.96 | 0.00 | 0.00 | 0.00 | 132.96 |
| 352+50 | 35250.00 | 50.00 | 26.26 | 0.00 | 0.00 | 0.00 | 42.94 | 0.00 | 0.00 | 0.00 | 175.91 | 0.00 | 0.00 | 0.00 | 175.91 |
| 353+00 | 35300.00 | 50.00 | 31.56 | 0.00 | 0.00 | 0.00 | 53.54 | 0.00 | 0.00 | 0.00 | 229.44 | 0.00 | 0.00 | 0.00 | 229.44 |
| 353+31 BK | 35331.33 | 31.33 | 33.86 | 0.00 | 0.00 | 0.00 | 37.96 | 0.00 | 0.00 | 0.00 | 267.40 | 0.00 | 0.00 | 0.00 | 267.40 |
| | | | | | Column totals | | 8408.84 | 0.00 | 0.00 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4689
September 14, 2015

**Division 3 USH 45 SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 319+80 AH | 31980.00 | 0.00 | 50.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 320+00 | 32000.00 | 20.00 | 44.98 | 0.00 | 0.00 | 0.00 | 35.32 | 0.00 | 0.00 | 0.00 | 35.32 | 0.00 | 0.00 | 0.00 | 35.32 |
| 320+50 | 32050.00 | 50.00 | 49.17 | 0.00 | 0.00 | 0.00 | 87.18 | 0.00 | 0.00 | 0.00 | 122.49 | 0.00 | 0.00 | 0.00 | 122.49 |
| 321+00 | 32100.00 | 50.00 | 53.59 | 0.00 | 0.00 | 0.00 | 95.15 | 0.00 | 0.00 | 0.00 | 217.64 | 0.00 | 0.00 | 0.00 | 217.64 |
| 321+50 | 32150.00 | 50.00 | 59.60 | 0.00 | 0.00 | 0.00 | 104.81 | 0.00 | 0.00 | 0.00 | 322.45 | 0.00 | 0.00 | 0.00 | 322.45 |
| 322+00 BK | 32200.00 | 50.00 | 50.28 | 0.00 | 0.00 | 0.00 | 101.74 | 0.00 | 0.00 | 0.00 | 424.19 | 0.00 | 0.00 | 0.00 | 424.19 |
| | | | | | | Column totals | 424.19 | 0.00 | 0.00 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4690
September 14, 2015

**Division 3 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material | Incremental Vol (CY) (Unadjusted) Fill | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut | Expanded Fill | Expanded EBS Backfill | Reduced EBS In Fill | Mass Ordinate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | 1.00 | 1.1 | 1.30 | 0.80 | |
| | | | | | | | Note 1 | Note 2 | Note 3 | | Note 1 | | Note 4 | Note 5 | Note 6 |
| 88+00 AH | 8800.00 | 0.00 | 78.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88+50 | 8850.00 | 50.00 | 77.19 | 0.00 | 0.00 | 0.00 | 144.11 | 0.00 | 0.00 | 0.00 | 144.11 | 0.00 | 0.00 | 0.00 | 144.11 |
| 89+00 | 8900.00 | 50.00 | 76.18 | 0.00 | 0.00 | 0.00 | 142.01 | 0.00 | 0.00 | 0.00 | 286.12 | 0.00 | 0.00 | 0.00 | 286.12 |
| 89+50 | 8950.00 | 50.00 | 74.39 | 0.00 | 0.00 | 0.00 | 139.42 | 0.00 | 0.00 | 0.00 | 425.54 | 0.00 | 0.00 | 0.00 | 425.54 |
| 90+00 | 9000.00 | 50.00 | 70.55 | 0.00 | 0.00 | 0.00 | 134.20 | 0.00 | 0.00 | 0.00 | 559.74 | 0.00 | 0.00 | 0.00 | 559.74 |
| 90+50 | 9050.00 | 50.00 | 65.91 | 0.00 | 0.00 | 0.00 | 126.35 | 0.00 | 0.00 | 0.00 | 686.09 | 0.00 | 0.00 | 0.00 | 686.09 |
| 91+00 | 9100.00 | 50.00 | 61.13 | 0.00 | 0.00 | 0.00 | 117.63 | 0.00 | 0.00 | 0.00 | 803.72 | 0.00 | 0.00 | 0.00 | 803.72 |
| 91+50 | 9150.00 | 50.00 | 56.23 | 0.00 | 0.00 | 0.00 | 108.67 | 0.00 | 0.00 | 0.00 | 912.39 | 0.00 | 0.00 | 0.00 | 912.39 |
| 92+00 | 9200.00 | 50.00 | 49.37 | 0.00 | 0.00 | 0.00 | 97.78 | 0.00 | 0.00 | 0.00 | 1010.17 | 0.00 | 0.00 | 0.00 | 1010.17 |
| 92+50 | 9250.00 | 50.00 | 42.03 | 0.00 | 0.00 | 0.00 | 84.63 | 0.00 | 0.00 | 0.00 | 1094.80 | 0.00 | 0.00 | 0.00 | 1094.80 |
| 93+00 | 9300.00 | 50.00 | 32.11 | 0.00 | 0.00 | 0.00 | 68.65 | 0.00 | 0.00 | 0.00 | 1163.44 | 0.00 | 0.00 | 0.00 | 1163.44 |
| 93+50 | 9350.00 | 50.00 | 22.95 | 0.00 | 0.00 | 0.00 | 50.98 | 0.00 | 0.00 | 0.00 | 1214.43 | 0.00 | 0.00 | 0.00 | 1214.43 |
| 94+00 | 9400.00 | 50.00 | 30.89 | 0.00 | 0.00 | 0.00 | 49.85 | 0.00 | 0.00 | 0.00 | 1264.28 | 0.00 | 0.00 | 0.00 | 1264.28 |
| 94+50 | 9450.00 | 50.00 | 13.18 | 0.00 | 0.00 | 0.00 | 40.81 | 0.00 | 0.00 | 0.00 | 1305.08 | 0.00 | 0.00 | 0.00 | 1305.08 |
| 95+00 | 9500.00 | 50.00 | 3.14 | 0.00 | 4.80 | 0.00 | 15.11 | 0.00 | 4.44 | 0.00 | 1320.19 | 4.89 | 0.00 | 0.00 | 1315.31 |
| 95+50 | 9550.00 | 50.00 | 0.46 | 0.00 | 13.15 | 0.00 | 3.33 | 0.00 | 16.62 | 0.00 | 1323.53 | 23.17 | 0.00 | 0.00 | 1300.36 |
| 96+00 | 9600.00 | 50.00 | 0.00 | 0.00 | 20.99 | 0.00 | 0.43 | 0.00 | 31.61 | 0.00 | 1323.95 | 57.94 | 0.00 | 0.00 | 1266.01 |
| 96+50 | 9650.00 | 50.00 | 0.00 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 44.44 | 0.00 | 1323.95 | 106.82 | 0.00 | 0.00 | 1217.13 |
| 97+00 | 9700.00 | 50.00 | 0.00 | 0.00 | 28.79 | 0.00 | 0.00 | 0.00 | 51.66 | 0.00 | 1323.95 | 163.65 | 0.00 | 0.00 | 1160.31 |
| 97+50 | 9750.00 | 50.00 | 0.00 | 0.00 | 30.48 | 0.00 | 0.00 | 0.00 | 54.88 | 0.00 | 1323.95 | 224.01 | 0.00 | 0.00 | 1099.94 |
| 98+00 | 9800.00 | 50.00 | 0.00 | 0.00 | 32.35 | 0.00 | 0.00 | 0.00 | 58.18 | 0.00 | 1323.95 | 288.01 | 0.00 | 0.00 | 1035.95 |
| 98+50 | 9850.00 | 50.00 | 0.00 | 0.00 | 35.55 | 0.00 | 0.00 | 0.00 | 62.87 | 0.00 | 1323.95 | 357.16 | 0.00 | 0.00 | 966.79 |
| 99+00 | 9900.00 | 50.00 | 0.00 | 0.00 | 50.01 | 0.00 | 0.00 | 0.00 | 79.22 | 0.00 | 1323.95 | 444.31 | 0.00 | 0.00 | 879.65 |
| 99+40 | 9940.14 | 40.14 | 0.00 | 0.00 | 49.20 | 0.00 | 0.00 | 0.00 | 73.75 | 0.00 | 1323.95 | 525.43 | 0.00 | 0.00 | 798.52 |
| 99+45 BK | 9945.45 | 5.31 | 0.00 | 0.00 | 48.22 | 0.00 | 0.00 | 0.00 | 9.58 | 0.00 | 1323.95 | 535.97 | 0.00 | 0.00 | 787.99 |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4691
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 3 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material | Incremental Vol (CY) (Unadjusted) Fill | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut | Cumulative Vol (CY) Expanded Fill | Cumulative Vol (CY) Expanded EBS Backfill | Cumulative Vol (CY) Reduced EBS In Fill | Mass Ordinate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 1.00 | 1.1 | 1.30 | 0.80 | |
| | | | | | | | Note 1 | Note 2 | Note 3 | | Note 1 | | Note 4 | Note 5 | Note 6 |
| 102+17 AH | 10216.66 | 0.00 | 0.00 | 0.00 | 55.76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102+22 | 10221.98 | 5.32 | 0.00 | 0.00 | 57.31 | 0.00 | 0.00 | 0.00 | 11.14 | 0.00 | 0.00 | 12.25 | 0.00 | 0.00 | -12.25 |
| 102+50 | 10250.00 | 28.02 | 0.00 | 0.00 | 68.83 | 0.00 | 0.00 | 0.00 | 65.45 | 0.00 | 0.00 | 84.25 | 0.00 | 0.00 | -84.25 |
| 103+00 | 10300.00 | 50.00 | 0.00 | 0.00 | 80.73 | 0.00 | 0.00 | 0.00 | 138.48 | 0.00 | 0.00 | 236.58 | 0.00 | 0.00 | -236.58 |
| 103+50 | 10350.00 | 50.00 | 0.00 | 0.00 | 92.62 | 0.00 | 0.00 | 0.00 | 160.51 | 0.00 | 0.00 | 413.14 | 0.00 | 0.00 | -413.14 |
| 104+00 | 10400.00 | 50.00 | 0.00 | 0.00 | 100.91 | 0.00 | 0.00 | 0.00 | 179.19 | 0.00 | 0.00 | 610.26 | 0.00 | 0.00 | -610.26 |
| 104+50 | 10450.00 | 50.00 | 0.00 | 0.00 | 99.71 | 0.00 | 0.00 | 0.00 | 185.76 | 0.00 | 0.00 | 814.59 | 0.00 | 0.00 | -814.59 |
| 105+00 | 10500.00 | 50.00 | 0.00 | 0.00 | 86.08 | 0.00 | 0.00 | 0.00 | 172.03 | 0.00 | 0.00 | 1003.82 | 0.00 | 0.00 | -1003.82 |
| 105+50 | 10550.00 | 50.00 | 0.00 | 0.00 | 62.64 | 0.00 | 0.00 | 0.00 | 137.70 | 0.00 | 0.00 | 1155.29 | 0.00 | 0.00 | -1155.29 |
| 106+00 | 10600.00 | 50.00 | 0.00 | 0.00 | 40.88 | 0.00 | 0.00 | 0.00 | 95.85 | 0.00 | 0.00 | 1260.73 | 0.00 | 0.00 | -1260.73 |
| 106+50 | 10650.00 | 50.00 | 0.04 | 0.00 | 18.41 | 0.00 | 0.04 | 0.00 | 54.90 | 0.00 | 0.04 | 1321.12 | 0.00 | 0.00 | -1321.08 |
| 107+00 | 10700.00 | 50.00 | 11.10 | 0.00 | 4.26 | 0.00 | 10.31 | 0.00 | 20.99 | 0.00 | 10.35 | 1344.21 | 0.00 | 0.00 | -1333.86 |
| 107+50 | 10750.00 | 50.00 | 32.36 | 0.00 | 0.00 | 0.00 | 40.24 | 0.00 | 3.94 | 0.00 | 50.59 | 1348.55 | 0.00 | 0.00 | -1297.96 |
| 108+00 | 10800.00 | 50.00 | 54.38 | 0.00 | 0.00 | 0.00 | 80.31 | 0.00 | 0.00 | 0.00 | 130.91 | 1348.55 | 0.00 | 0.00 | -1217.64 |
| 108+50 | 10850.00 | 50.00 | 67.61 | 0.00 | 0.00 | 0.00 | 112.95 | 0.00 | 0.00 | 0.00 | 243.86 | 1348.55 | 0.00 | 0.00 | -1104.69 |
| 109+00 | 10900.00 | 50.00 | 69.50 | 0.00 | 0.00 | 0.00 | 126.95 | 0.00 | 0.00 | 0.00 | 370.81 | 1348.55 | 0.00 | 0.00 | -977.73 |
| 109+50 | 10950.00 | 50.00 | 63.27 | 0.00 | 0.00 | 0.00 | 122.94 | 0.00 | 0.00 | 0.00 | 493.75 | 1348.55 | 0.00 | 0.00 | -854.80 |
| 110+00 | 11000.00 | 50.00 | 39.85 | 0.00 | 0.00 | 0.00 | 95.48 | 0.00 | 0.00 | 0.00 | 589.23 | 1348.55 | 0.00 | 0.00 | -759.32 |
| 110+50 | 11050.00 | 50.00 | 11.19 | 0.00 | 2.27 | 0.00 | 47.26 | 0.00 | 2.10 | 0.00 | 636.49 | 1350.86 | 0.00 | 0.00 | -714.37 |
| 111+00 | 11100.00 | 50.00 | 0.00 | 0.00 | 26.21 | 0.00 | 10.36 | 0.00 | 26.37 | 0.00 | 646.85 | 1379.87 | 0.00 | 0.00 | -733.02 |
| 111+25 BK | 11124.67 | 24.67 | 0.00 | 0.00 | 45.80 | 0.00 | 0.00 | 0.00 | 32.90 | 0.00 | 646.85 | 1416.06 | 0.00 | 0.00 | -769.20 |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4692
September 14, 2015

(CONTINUED ON NEXT SHEET)

Addendum No. 03
ID 1060-33-81
Revised Sheet 4693
September 14, 2015

(CONTINUED)

**Division 3 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material | Incremental Vol (CY) (Unadjusted) Fill | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut | Expanded Fill | Expanded EBS Backfill | Reduced EBS In Fill | Mass Ordinate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 1.00 | 1.1 | 1.30 | 0.80 | |
| | | | Note 1 | Note 2 | | | Note 1 | Note 2 | Note 3 | | Note 1 | | Note 4 | Note 5 | Note 6 |
| 112+73 AH | 11273.43 | 0.00 | 0.00 | 0.00 | 1064.68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113+00 | 11300.00 | 26.57 | 0.00 | 0.00 | 506.52 | | 0.00 | 0.00 | 773.09 | 0.00 | 0.00 | 850.40 | 0.00 | 0.00 | -850.40 |
| 113+50 | 11350.00 | 50.00 | 0.00 | 0.00 | 259.36 | 0.00 | 0.00 | 0.00 | 709.15 | 0.00 | 0.00 | 1630.46 | 0.00 | 0.00 | -1630.46 |
| 114+00 | 11400.00 | 50.00 | 0.00 | 0.00 | 317.26 | 0.00 | 0.00 | 0.00 | 533.91 | 0.00 | 0.00 | 2217.76 | 0.00 | 0.00 | -2217.76 |
| 114+50 | 11450.00 | 50.00 | 0.00 | 0.00 | 378.10 | 0.00 | 0.00 | 0.00 | 643.85 | 0.00 | 0.00 | 2926.00 | 0.00 | 0.00 | -2926.00 |
| 115+00 | 11500.00 | 50.00 | 0.00 | 0.00 | 449.77 | 0.00 | 0.00 | 0.00 | 766.55 | 0.00 | 0.00 | 3769.20 | 0.00 | 0.00 | -3769.20 |
| 115+50 | 11550.00 | 50.00 | 0.00 | 0.00 | 532.33 | 0.00 | 0.00 | 0.00 | 909.35 | 0.00 | 0.00 | 4769.48 | 0.00 | 0.00 | -4769.48 |
| 116+00 | 11600.00 | 50.00 | 0.00 | 0.00 | 613.27 | 0.00 | 0.00 | 0.00 | 1060.74 | 0.00 | 0.00 | 5936.30 | 0.00 | 0.00 | -5936.30 |
| 116+50 | 11650.00 | 50.00 | 0.00 | 0.00 | 684.66 | 0.00 | 0.00 | 0.00 | 1201.79 | 0.00 | 0.00 | 7258.26 | 0.00 | 0.00 | -7258.26 |
| 117+00 | 11700.00 | 50.00 | 0.00 | 0.00 | 575.06 | 0.00 | 0.00 | 0.00 | 1166.41 | 0.00 | 0.00 | 8541.31 | 0.00 | 0.00 | -8541.31 |
| 117+00 | 11700.00 | 0.00 | 0.00 | 0.00 | 457.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 8541.31 | 0.00 | 0.00 | -8541.31 |
| 117+50 | 11750.00 | 50.00 | 0.00 | 0.00 | 487.48 | 0.00 | 0.00 | 0.00 | 875.27 | 0.00 | 0.00 | 9504.11 | 0.00 | 0.00 | -9504.11 |
| 118+00 | 11800.00 | 50.00 | 0.00 | 0.00 | 507.24 | 0.00 | 0.00 | 0.00 | 921.04 | 0.00 | 0.00 | 10517.25 | 0.00 | 0.00 | -10517.25 |
| 118+50 | 11850.00 | 50.00 | 0.00 | 0.00 | 517.20 | 0.00 | 0.00 | 0.00 | 948.56 | 0.00 | 0.00 | 11560.66 | 0.00 | 0.00 | -11560.66 |
| 119+00 | 11900.00 | 50.00 | 0.00 | 0.00 | 519.68 | 0.00 | 0.00 | 0.00 | 960.07 | 0.00 | 0.00 | 12616.74 | 0.00 | 0.00 | -12616.74 |
| 119+50 | 11950.00 | 50.00 | 0.00 | 0.00 | 516.03 | 0.00 | 0.00 | 0.00 | 958.99 | 0.00 | 0.00 | 13671.63 | 0.00 | 0.00 | -13671.63 |
| 120+00 | 12000.00 | 50.00 | 0.00 | 0.00 | 508.61 | 0.00 | 0.00 | 0.00 | 948.74 | 0.00 | 0.00 | 14715.25 | 0.00 | 0.00 | -14715.25 |
| 120+50 | 12050.00 | 50.00 | 0.00 | 0.00 | 493.12 | 0.00 | 0.00 | 0.00 | 927.53 | 0.00 | 0.00 | 15735.53 | 0.00 | 0.00 | -15735.53 |
| 121+00 | 12100.00 | 50.00 | 0.00 | 0.00 | 467.95 | 0.00 | 0.00 | 0.00 | 889.88 | 0.00 | 0.00 | 16714.39 | 0.00 | 0.00 | -16714.39 |
| 121+50 | 12150.00 | 50.00 | 0.00 | 0.00 | 437.37 | 0.00 | 0.00 | 0.00 | 838.26 | 0.00 | 0.00 | 17636.48 | 0.00 | 0.00 | -17636.48 |
| 122+00 | 12200.00 | 50.00 | 0.00 | 0.00 | 404.60 | 0.00 | 0.00 | 0.00 | 779.60 | 0.00 | 0.00 | 18494.04 | 0.00 | 0.00 | -18494.04 |
| 122+50 | 12250.00 | 50.00 | 0.00 | 0.00 | 368.32 | 0.00 | 0.00 | 0.00 | 715.67 | 0.00 | 0.00 | 19281.27 | 0.00 | 0.00 | -19281.27 |
| 123+00 | 12300.00 | 50.00 | 0.00 | 0.00 | 332.87 | 0.00 | 0.00 | 0.00 | 649.25 | 0.00 | 0.00 | 19995.45 | 0.00 | 0.00 | -19995.45 |
| 123+50 | 12350.00 | 50.00 | 0.00 | 0.00 | 294.55 | 0.00 | 0.00 | 0.00 | 580.94 | 0.00 | 0.00 | 20634.49 | 0.00 | 0.00 | -20634.49 |
| 123+93 | 12392.51 | 42.51 | 0.00 | 0.00 | 259.09 | 0.00 | 0.00 | 0.00 | 435.84 | 0.00 | 0.00 | 21113.91 | 0.00 | 0.00 | -21113.91 |
| 124+00 | 12400.00 | 7.49 | 0.00 | 0.00 | 251.94 | 0.00 | 0.00 | 0.00 | 70.88 | 0.00 | 0.00 | 21191.88 | 0.00 | 0.00 | -21191.88 |
| 124+50 | 12450.00 | 50.00 | 0.00 | 0.00 | 216.68 | 0.00 | 0.00 | 0.00 | 433.91 | 0.00 | 0.00 | 21669.18 | 0.00 | 0.00 | -21669.18 |
| 125+00 | 12500.00 | 50.00 | 0.00 | 0.00 | 180.28 | 0.00 | 0.00 | 0.00 | 367.56 | 0.00 | 0.00 | 22073.49 | 0.00 | 0.00 | -22073.49 |
| 125+50 | 12550.00 | 50.00 | 0.00 | 0.00 | 153.77 | 0.00 | 0.00 | 0.00 | 309.31 | 0.00 | 0.00 | 22413.72 | 0.00 | 0.00 | -22413.72 |
| 126+00 | 12600.00 | 50.00 | 0.00 | 0.00 | 140.03 | 0.00 | 0.00 | 0.00 | 272.04 | 0.00 | 0.00 | 22712.97 | 0.00 | 0.00 | -22712.97 |
| 126+50 | 12650.00 | 50.00 | 0.00 | 0.00 | 139.83 | 0.00 | 0.00 | 0.00 | 259.13 | 0.00 | 0.00 | 22998.01 | 0.00 | 0.00 | -22998.01 |
| 126+86 | 12685.83 | 35.83 | 0.00 | 0.00 | 289.69 | 0.00 | 0.00 | 0.00 | 284.99 | 0.00 | 0.00 | 23311.50 | 0.00 | 0.00 | -23311.50 |
| 128+66 | 12865.50 | 179.67 | 0.00 | 0.00 | 722.51 | 0.00 | 0.00 | 0.00 | 3367.81 | 0.00 | 0.00 | 27016.10 | 0.00 | 0.00 | -27016.10 |
| 129+11 BK | 12911.00 | 45.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 608.78 | 0.00 | 0.00 | 27685.76 | 0.00 | 0.00 | -27685.76 |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 3 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material | Incremental Vol (CY) (Unadjusted) Fill | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut | Cumulative Vol (CY) Expanded Fill | Cumulative Vol (CY) Expanded EBS Backfill | Cumulative Vol (CY) Reduced EBS In Fill | Mass Ordinate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 1.00 | 1.1 | 1.30 | 0.80 | |
| | | | | | | | Note 1 | Note 2 | Note 3 | | Note 1 | | Note 4 | Note 5 | Note 6 |
| 130+07 AH | 13007.04 | 0.00 | 0.00 | 0.00 | 504.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 132+30 | 13230.43 | 223.39 | 0.00 | 0.00 | 335.71 | 0.00 | 0.00 | 0.00 | 3474.05 | 0.00 | 0.00 | 3821.45 | 0.00 | 0.00 | -3821.45 |
| 132+50 | 13250.00 | 19.57 | 0.00 | 0.00 | 344.87 | 0.00 | 0.00 | 0.00 | 246.65 | 0.00 | 0.00 | 4092.76 | 0.00 | 0.00 | -4092.76 |
| 132+57 | 13257.16 | 7.16 | 0.00 | 0.00 | 348.28 | 0.00 | 0.00 | 0.00 | 91.91 | 0.00 | 0.00 | 4193.86 | 0.00 | 0.00 | -4193.86 |
| 133+00 | 13300.00 | 42.84 | 0.00 | 0.00 | 366.26 | 0.00 | 0.00 | 0.00 | 566.87 | 0.00 | 0.00 | 4817.41 | 0.00 | 0.00 | -4817.41 |
| 133+50 | 13350.00 | 50.00 | 0.00 | 0.00 | 376.58 | 0.00 | 0.00 | 0.00 | 687.81 | 0.00 | 0.00 | 5574.01 | 0.00 | 0.00 | -5574.01 |
| 133+89 | 13388.58 | 38.58 | 0.00 | 0.00 | 377.69 | 0.00 | 0.00 | 0.00 | 538.88 | 0.00 | 0.00 | 6166.78 | 0.00 | 0.00 | -6166.78 |
| 133+89 | 13388.58 | 0.00 | 0.00 | 0.00 | 377.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6166.78 | 0.00 | 0.00 | -6166.78 |
| 134+00 | 13400.00 | 11.42 | 0.00 | 0.00 | 376.94 | 0.00 | 0.00 | 0.00 | 159.59 | 0.00 | 0.00 | 6342.33 | 0.00 | 0.00 | -6342.33 |
| 134+50 | 13450.00 | 50.00 | 0.00 | 0.00 | 368.57 | 0.00 | 0.00 | 0.00 | 690.29 | 0.00 | 0.00 | 7101.65 | 0.00 | 0.00 | -7101.65 |
| 135+00 | 13500.00 | 50.00 | 0.00 | 0.00 | 347.16 | 0.00 | 0.00 | 0.00 | 662.71 | 0.00 | 0.00 | 7830.63 | 0.00 | 0.00 | -7830.63 |
| 135+50 | 13550.00 | 50.00 | 0.00 | 0.00 | 306.18 | 0.00 | 0.00 | 0.00 | 604.94 | 0.00 | 0.00 | 8496.07 | 0.00 | 0.00 | -8496.07 |
| 136+00 | 13600.00 | 50.00 | 0.00 | 0.00 | 249.86 | 0.00 | 0.00 | 0.00 | 514.85 | 0.00 | 0.00 | 9062.41 | 0.00 | 0.00 | -9062.41 |
| 136+50 | 13650.00 | 50.00 | 0.00 | 0.00 | 186.92 | 0.00 | 0.00 | 0.00 | 404.43 | 0.00 | 0.00 | 9507.28 | 0.00 | 0.00 | -9507.28 |
| 136+53 | 13652.65 | 2.65 | 0.00 | 0.00 | 183.72 | 0.00 | 0.00 | 0.00 | 18.19 | 0.00 | 0.00 | 9527.29 | 0.00 | 0.00 | -9527.29 |
| 137+00 | 13700.00 | 47.35 | 0.00 | 0.00 | 140.42 | 0.00 | 0.00 | 0.00 | 284.22 | 0.00 | 0.00 | 9839.93 | 0.00 | 0.00 | -9839.93 |
| 137+50 | 13750.00 | 50.00 | 0.00 | 0.00 | 133.83 | 0.00 | 0.00 | 0.00 | 253.94 | 0.00 | 0.00 | 10119.26 | 0.00 | 0.00 | -10119.26 |
| 138+00 | 13800.00 | 50.00 | 0.00 | 0.00 | 137.50 | 0.00 | 0.00 | 0.00 | 251.23 | 0.00 | 0.00 | 10395.62 | 0.00 | 0.00 | -10395.62 |
| 138+50 | 13850.00 | 50.00 | 0.00 | 0.00 | 151.86 | 0.00 | 0.00 | 0.00 | 267.93 | 0.00 | 0.00 | 10690.33 | 0.00 | 0.00 | -10690.33 |
| 139+00 | 13900.00 | 50.00 | 0.00 | 0.00 | 104.60 | 0.00 | 0.00 | 0.00 | 237.46 | 0.00 | 0.00 | 10951.54 | 0.00 | 0.00 | -10951.54 |
| 139+50 | 13950.00 | 50.00 | 0.00 | 0.00 | 63.19 | 0.00 | 0.00 | 0.00 | 155.36 | 0.00 | 0.00 | 11122.44 | 0.00 | 0.00 | -11122.44 |
| 140+00 | 14000.00 | 50.00 | 0.02 | 0.00 | 43.12 | 0.00 | 0.02 | 0.00 | 98.44 | 0.00 | 0.02 | 11230.72 | 0.00 | 0.00 | -11230.70 |
| 140+50 | 14050.00 | 50.00 | 0.01 | 0.00 | 35.55 | 0.00 | 0.03 | 0.00 | 72.84 | 0.00 | 0.05 | 11310.85 | 0.00 | 0.00 | -11310.80 |
| 141+00 | 14100.00 | 50.00 | 0.18 | 0.00 | 27.61 | 0.00 | 0.18 | 0.00 | 58.48 | 0.00 | 0.22 | 11375.18 | 0.00 | 0.00 | -11374.95 |
| 141+50 | 14150.00 | 50.00 | 0.40 | 0.00 | 18.41 | 0.00 | 0.54 | 0.00 | 42.61 | 0.00 | 0.76 | 11422.05 | 0.00 | 0.00 | -11421.29 |
| 142+00 | 14200.00 | 50.00 | 0.84 | 0.00 | 8.04 | 0.00 | 1.15 | 0.00 | 24.49 | 0.00 | 1.91 | 11448.99 | 0.00 | 0.00 | -11447.08 |
| 142+50 | 14250.00 | 50.00 | 0.45 | 0.00 | 11.57 | 0.00 | 1.19 | 0.00 | 18.16 | 0.00 | 3.10 | 11468.96 | 0.00 | 0.00 | -11465.86 |
| 143+00 | 14300.00 | 50.00 | 0.07 | 0.00 | 13.18 | 0.00 | 0.48 | 0.00 | 22.92 | 0.00 | 3.58 | 11494.17 | 0.00 | 0.00 | -11490.59 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4694
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 3 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material | Incremental Vol (CY) (Unadjusted) Fill | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut | Cumulative Vol (CY) Expanded Fill | Cumulative Vol (CY) Expanded EBS Backfill | Cumulative Vol (CY) Reduced EBS In Fill | Mass Ordinate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Note 1 | Note 2 | Note 3 | | Note 1 | 1.1 | Note 4 | Note 5 | Note 6 |
| 143+00 | 14300.00 | 0.00 | 0.07 | 0.00 | 24.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.58 | 11494.17 | 0.00 | 0.00 | -11490.59 |
| 143+50 | 14350.00 | 50.00 | 1.04 | 0.00 | 10.83 | 0.00 | 1.03 | 0.00 | 32.55 | 0.00 | 4.61 | 11529.97 | 0.00 | 0.00 | -11525.36 |
| 144+00 | 14400.00 | 50.00 | 13.29 | 0.00 | 0.11 | 0.00 | 13.27 | 0.00 | 10.13 | 0.00 | 17.88 | 11541.11 | 0.00 | 0.00 | -11523.23 |
| 144+50 | 14450.00 | 50.00 | 39.61 | 0.00 | 0.80 | 0.00 | 48.98 | 0.00 | 0.84 | 0.00 | 66.86 | 11542.04 | 0.00 | 0.00 | -11475.18 |
| 145+00 | 14500.00 | 50.00 | 70.88 | 0.00 | 0.67 | 0.00 | 102.31 | 0.00 | 1.36 | 0.00 | 169.17 | 11543.54 | 0.00 | 0.00 | -11374.37 |
| 145+22 | 14522.00 | 22.00 | 82.82 | 0.00 | 0.54 | 0.00 | 62.62 | 0.00 | 0.49 | 0.00 | 231.79 | 11544.08 | 0.00 | 0.00 | -11312.29 |
| 145+22 | 14522.00 | 0.00 | 100.16 | 0.00 | 1.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 231.79 | 11544.08 | 0.00 | 0.00 | -11312.29 |
| 145+50 | 14550.00 | 28.00 | 119.91 | 0.00 | 0.53 | 0.00 | 114.11 | 0.00 | 1.01 | 0.00 | 345.90 | 11545.19 | 0.00 | 0.00 | -11199.29 |
| 146+00 | 14600.00 | 50.00 | 142.80 | 0.00 | 0.11 | 0.00 | 243.25 | 0.00 | 0.59 | 0.00 | 589.15 | 11545.84 | 0.00 | 0.00 | -10956.69 |
| 146+50 | 14650.00 | 50.00 | 153.80 | 0.00 | 0.12 | 0.00 | 274.63 | 0.00 | 0.21 | 0.00 | 863.78 | 11546.07 | 0.00 | 0.00 | -10682.30 |
| 147+00 BK | 14700.00 | 50.00 | 168.18 | 0.00 | 0.17 | 0.00 | 298.13 | 0.00 | 0.27 | 0.00 | 1161.90 | 11546.37 | 0.00 | 0.00 | -10384.46 |
| | | Column totals | | | | | 3132.71 | 0.00 | 37440.13 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4695
September 14, 2015



9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:31 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew70 PLOT SCALE : 1:1

**Division 3 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material | Incremental Vol (CY) (Unadjusted) Fill | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut | Expanded Fill | Expanded EBS Backfill | Reduced EBS In Fill | Mass Ordinate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 1.00 | 1.1 | 1.30 | 0.80 | |
| | | | | | | | Note 1 | Note 2 | Note 3 | | Note 1 | | Note 4 | Note 5 | Note 6 |
| 196+19 AH | 19619.05 | 0.00 | 6824.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 196+50 | 19650.00 | 30.95 | 6296.94 | 0.00 | 0.00 | 0.00 | 7521.14 | 0.00 | 0.00 | 0.00 | 7521.14 | 0.00 | 0.00 | 0.00 | 7521.14 |
| 197+00 | 19700.00 | 50.00 | 5108.87 | 0.00 | 0.00 | 0.00 | 10560.94 | 0.00 | 0.00 | 0.00 | 18082.08 | 0.00 | 0.00 | 0.00 | 18082.08 |
| 197+50 | 19750.00 | 50.00 | 3692.45 | 0.00 | 0.00 | 0.00 | 8149.37 | 0.00 | 0.00 | 0.00 | 26231.45 | 0.00 | 0.00 | 0.00 | 26231.45 |
| 198+00 | 19800.00 | 50.00 | 3172.10 | 0.00 | 0.00 | 0.00 | 6356.06 | 0.00 | 0.00 | 0.00 | 32587.51 | 0.00 | 0.00 | 0.00 | 32587.51 |
| 198+50 | 19850.00 | 50.00 | 2962.88 | 0.00 | 0.00 | 0.00 | 5680.54 | 0.00 | 0.00 | 0.00 | 38268.05 | 0.00 | 0.00 | 0.00 | 38268.05 |
| 199+00 | 19900.00 | 50.00 | 1839.48 | 0.00 | 0.00 | 0.00 | 4446.63 | 0.00 | 0.00 | 0.00 | 42714.68 | 0.00 | 0.00 | 0.00 | 42714.68 |
| 199+50 | 19950.00 | 50.00 | 1673.79 | 0.00 | 0.00 | 0.00 | 3253.03 | 0.00 | 0.00 | 0.00 | 45967.71 | 0.00 | 0.00 | 0.00 | 45967.71 |
| 200+00 | 20000.00 | 50.00 | 1486.04 | 0.00 | 0.00 | 0.00 | 2925.77 | 0.00 | 0.00 | 0.00 | 48893.48 | 0.00 | 0.00 | 0.00 | 48893.48 |
| 200+50 | 20050.00 | 50.00 | 1291.98 | 0.00 | 0.00 | 0.00 | 2572.24 | 0.00 | 0.00 | 0.00 | 51465.72 | 0.00 | 0.00 | 0.00 | 51465.72 |
| 201+00 | 20100.00 | 50.00 | 1179.87 | 0.00 | 0.00 | 0.00 | 2288.75 | 0.00 | 0.00 | 0.00 | 53754.47 | 0.00 | 0.00 | 0.00 | 53754.47 |
| 201+50 | 20150.00 | 50.00 | 1081.46 | 0.00 | 0.00 | 0.00 | 2093.82 | 0.00 | 0.00 | 0.00 | 55848.29 | 0.00 | 0.00 | 0.00 | 55848.29 |
| 202+00 | 20200.00 | 50.00 | 979.97 | 0.00 | 0.00 | 0.00 | 1908.73 | 0.00 | 0.00 | 0.00 | 57757.02 | 0.00 | 0.00 | 0.00 | 57757.02 |
| 202+50 | 20250.00 | 50.00 | 904.64 | 0.00 | 0.00 | 0.00 | 1745.01 | 0.00 | 0.00 | 0.00 | 59502.03 | 0.00 | 0.00 | 0.00 | 59502.03 |
| 203+00 | 20300.00 | 50.00 | 750.11 | 0.00 | 0.00 | 0.00 | 1532.18 | 0.00 | 0.00 | 0.00 | 61034.21 | 0.00 | 0.00 | 0.00 | 61034.21 |
| 203+50 | 20350.00 | 50.00 | 664.31 | 0.00 | 0.00 | 0.00 | 1309.65 | 0.00 | 0.00 | 0.00 | 62343.86 | 0.00 | 0.00 | 0.00 | 62343.86 |
| 204+00 | 20400.00 | 50.00 | 589.92 | 0.00 | 0.00 | 0.00 | 1161.32 | 0.00 | 0.00 | 0.00 | 63505.18 | 0.00 | 0.00 | 0.00 | 63505.18 |
| 204+50 | 20450.00 | 50.00 | 522.54 | 0.00 | 0.00 | 0.00 | 1030.06 | 0.00 | 0.00 | 0.00 | 64535.24 | 0.00 | 0.00 | 0.00 | 64535.24 |
| 205+00 | 20500.00 | 50.00 | 460.39 | 0.00 | 0.00 | 0.00 | 910.12 | 0.00 | 0.00 | 0.00 | 65445.36 | 0.00 | 0.00 | 0.00 | 65445.36 |
| 205+50 | 20550.00 | 50.00 | 402.74 | 0.00 | 0.00 | 0.00 | 799.19 | 0.00 | 0.00 | 0.00 | 66244.55 | 0.00 | 0.00 | 0.00 | 66244.55 |
| 206+00 | 20600.00 | 50.00 | 341.44 | 0.00 | 0.00 | 0.00 | 689.06 | 0.00 | 0.00 | 0.00 | 66933.61 | 0.00 | 0.00 | 0.00 | 66933.61 |
| 206+50 | 20650.00 | 50.00 | 277.79 | 0.00 | 0.00 | 0.00 | 573.36 | 0.00 | 0.00 | 0.00 | 67506.97 | 0.00 | 0.00 | 0.00 | 67506.97 |
| 207+00 | 20700.00 | 50.00 | 225.05 | 0.00 | 0.00 | 0.00 | 465.59 | 0.00 | 0.00 | 0.00 | 67972.56 | 0.00 | 0.00 | 0.00 | 67972.56 |
| 207+50 | 20750.00 | 50.00 | 193.11 | 0.00 | 0.00 | 0.00 | 387.19 | 0.00 | 0.00 | 0.00 | 68359.75 | 0.00 | 0.00 | 0.00 | 68359.75 |
| 208+00 BK | 20800.00 | 50.00 | 179.72 | 0.00 | 0.00 | 0.00 | 345.21 | 0.00 | 0.00 | 0.00 | 68704.96 | 0.00 | 0.00 | 0.00 | 68704.96 |
| | | | | | | Column totals | 68704.96 | 0.00 | 0.00 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4696
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:31 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew71 PLOT SCALE : 1:1

**Division 3 IH 94 WB**

| STATION | Real Station | Distance | AREA (SF) | | | | Incremental Vol (CY) (Unadjusted) | | | | Cumulative Vol (CY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Expanded Fill | Expanded EBS Backfill | Reduced EBS In Fill | Mass Ordinate |
| | | | | | | | | | | | 1.00 | 1.1 | 1.30 | 0.80 | |
| | | | | | | | Note 1 | Note 2 | Note 3 | | Note 1 | | Note 4 | Note 5 | Note 6 |
| 129+84 AH | 12984.08 | 0.00 | 0.00 | 0.00 | 89.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 130+00 | 13000.00 | 15.92 | 0.00 | 0.00 | 40.40 | 0.00 | 0.00 | 0.00 | 38.37 | 0.00 | 0.00 | 42.20 | 0.00 | 0.00 | -42.20 |
| 130+50 | 13050.00 | 50.00 | 0.00 | 0.00 | 32.84 | 0.00 | 0.00 | 0.00 | 67.81 | 0.00 | 0.00 | 116.80 | 0.00 | 0.00 | -116.80 |
| 131+00 | 13100.00 | 50.00 | 0.00 | 0.00 | 45.70 | 0.00 | 0.00 | 0.00 | 72.72 | 0.00 | 0.00 | 196.79 | 0.00 | 0.00 | -196.79 |
| 131+50 | 13150.00 | 50.00 | 0.00 | 0.00 | 56.82 | 0.00 | 0.00 | 0.00 | 94.93 | 0.00 | 0.00 | 301.21 | 0.00 | 0.00 | -301.21 |
| 131+68 | 13168.18 | 18.18 | 0.00 | 0.00 | 61.07 | 0.00 | 0.00 | 0.00 | 39.69 | 0.00 | 0.00 | 344.87 | 0.00 | 0.00 | -344.87 |
| 131+68 | 13168.18 | 0.00 | 0.00 | 0.00 | 61.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 344.87 | 0.00 | 0.00 | -344.87 |
| 132+00 | 13200.00 | 31.82 | 0.00 | 0.00 | 68.02 | 0.00 | 0.00 | 0.00 | 76.06 | 0.00 | 0.00 | 428.54 | 0.00 | 0.00 | -428.54 |
| 132+50 | 13250.00 | 50.00 | 0.00 | 0.00 | 78.88 | 0.00 | 0.00 | 0.00 | 136.02 | 0.00 | 0.00 | 578.16 | 0.00 | 0.00 | -578.16 |
| 133+00 | 13300.00 | 50.00 | 0.00 | 0.00 | 88.33 | 0.00 | 0.00 | 0.00 | 154.82 | 0.00 | 0.00 | 748.47 | 0.00 | 0.00 | -748.47 |
| 133+50 | 13350.00 | 50.00 | 0.00 | 0.00 | 95.02 | 0.00 | 0.00 | 0.00 | 169.77 | 0.00 | 0.00 | 935.21 | 0.00 | 0.00 | -935.21 |
| 134+00 | 13400.00 | 50.00 | 0.00 | 0.00 | 97.29 | 0.00 | 0.00 | 0.00 | 178.06 | 0.00 | 0.00 | 1131.08 | 0.00 | 0.00 | -1131.08 |
| 134+50 | 13450.00 | 50.00 | 0.00 | 0.00 | 95.23 | 0.00 | 0.00 | 0.00 | 178.26 | 0.00 | 0.00 | 1327.17 | 0.00 | 0.00 | -1327.17 |
| 135+00 | 13500.00 | 50.00 | 0.00 | 0.00 | 88.52 | 0.00 | 0.00 | 0.00 | 170.14 | 0.00 | 0.00 | 1514.32 | 0.00 | 0.00 | -1514.32 |
| 135+50 | 13550.00 | 50.00 | 0.00 | 0.00 | 76.89 | 0.00 | 0.00 | 0.00 | 153.16 | 0.00 | 0.00 | 1682.79 | 0.00 | 0.00 | -1682.79 |
| 135+87 | 13586.79 | 36.79 | 0.00 | 0.00 | 66.12 | 0.00 | 0.00 | 0.00 | 97.43 | 0.00 | 0.00 | 1789.97 | 0.00 | 0.00 | -1789.97 |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4697
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 3 IH 94 WB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 135+87 | 13586.79 | 0.00 | 0.00 | 0.00 | 66.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1789.97 | 0.00 | 0.00 | -1789.97 |
| 136+00 | 13600.00 | 13.21 | 0.00 | 0.00 | 61.55 | 0.00 | 0.00 | 0.00 | 31.23 | 0.00 | 0.00 | 1824.32 | 0.00 | 0.00 | -1824.32 |
| 136+50 | 13650.00 | 50.00 | 0.00 | 0.00 | 45.23 | 0.00 | 0.00 | 0.00 | 98.87 | 0.00 | 0.00 | 1933.08 | 0.00 | 0.00 | -1933.08 |
| 137+00 | 13700.00 | 50.00 | 0.00 | 0.00 | 33.08 | 0.00 | 0.00 | 0.00 | 72.51 | 0.00 | 0.00 | 2012.84 | 0.00 | 0.00 | -2012.84 |
| 137+50 | 13750.00 | 50.00 | 0.00 | 0.00 | 23.50 | 0.00 | 0.00 | 0.00 | 52.39 | 0.00 | 0.00 | 2070.47 | 0.00 | 0.00 | -2070.47 |
| 138+00 | 13800.00 | 50.00 | 0.00 | 0.00 | 11.60 | 0.00 | 0.00 | 0.00 | 32.50 | 0.00 | 0.00 | 2106.22 | 0.00 | 0.00 | -2106.22 |
| 138+50 | 13850.00 | 50.00 | 0.00 | 0.00 | 0.96 | 0.00 | 0.00 | 0.00 | 11.63 | 0.00 | 0.00 | 2119.01 | 0.00 | 0.00 | -2119.01 |
| 139+00 | 13900.00 | 50.00 | 7.26 | 0.00 | 0.01 | 0.00 | 6.72 | 0.00 | 0.90 | 0.00 | 6.72 | 2120.00 | 0.00 | 0.00 | -2113.28 |
| 139+50 | 13950.00 | 50.00 | 13.66 | 0.00 | 0.01 | 0.00 | 19.37 | 0.00 | 0.02 | 0.00 | 26.09 | 2120.02 | 0.00 | 0.00 | -2093.93 |
| 140+00 | 14000.00 | 50.00 | 18.86 | 0.00 | 0.01 | 0.00 | 30.11 | 0.00 | 0.02 | 0.00 | 56.20 | 2120.04 | 0.00 | 0.00 | -2063.84 |
| 140+50 | 14050.00 | 50.00 | 21.66 | 0.00 | 0.01 | 0.00 | 37.52 | 0.00 | 0.02 | 0.00 | 93.72 | 2120.06 | 0.00 | 0.00 | -2026.34 |
| 141+00 | 14100.00 | 50.00 | 23.47 | 0.00 | 0.01 | 0.00 | 41.79 | 0.00 | 0.02 | 0.00 | 135.51 | 2120.08 | 0.00 | 0.00 | -1984.57 |
| 141+50 | 14150.00 | 50.00 | 25.27 | 0.00 | 0.02 | 0.00 | 45.13 | 0.00 | 0.03 | 0.00 | 180.64 | 2120.11 | 0.00 | 0.00 | -1939.47 |
| 142+00 | 14200.00 | 50.00 | 26.99 | 0.00 | 0.01 | 0.00 | 48.39 | 0.00 | 0.03 | 0.00 | 229.03 | 2120.14 | 0.00 | 0.00 | -1891.12 |
| 142+50 | 14250.00 | 50.00 | 26.30 | 0.00 | 0.02 | 0.00 | 49.34 | 0.00 | 0.03 | 0.00 | 278.37 | 2120.17 | 0.00 | 0.00 | -1841.80 |
| 143+00 | 14300.00 | 50.00 | 27.45 | 0.00 | 0.02 | 0.00 | 49.77 | 0.00 | 0.04 | 0.00 | 328.14 | 2120.21 | 0.00 | 0.00 | -1792.08 |
| 143+50 | 14350.00 | 50.00 | 32.17 | 0.00 | 0.02 | 0.00 | 55.20 | 0.00 | 0.04 | 0.00 | 383.34 | 2120.26 | 0.00 | 0.00 | -1736.91 |
| 144+00 | 14400.00 | 50.00 | 34.48 | 0.00 | 2.32 | 0.00 | 61.71 | 0.00 | 2.17 | 0.00 | 445.06 | 2122.64 | 0.00 | 0.00 | -1677.58 |
| 144+50 | 14450.00 | 50.00 | 33.27 | 0.00 | 6.50 | 0.00 | 62.73 | 0.00 | 8.17 | 0.00 | 507.79 | 2131.62 | 0.00 | 0.00 | -1623.83 |
| 145+00 BK | 14500.00 | 50.00 | 34.90 | 0.00 | 6.21 | 0.00 | 63.12 | 0.00 | 11.77 | 0.00 | 570.91 | 2144.57 | 0.00 | 0.00 | -1573.66 |
| | | | | | Column totals | | 570.91 | 0.00 | 1949.61 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4698
September 14, 2015

**Division 3 IH 94 WB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material | Incremental Vol (CY) (Unadjusted) Fill | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut | Cumulative Vol (CY) Expanded Fill | Cumulative Vol (CY) Expanded EBS Backfill | Cumulative Vol (CY) Reduced EBS In Fill | Mass Ordinate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 1.00 | 1.1 | 1.30 | 0.80 | |
| | | | | | | | Note 1 | Note 2 | Note 3 | | Note 1 | | Note 4 | Note 5 | Note 6 |
| 198+98 AH | 19897.79 | 0.00 | 2337.30 | 0.00 | 139.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 199+00 | 19900.00 | 2.21 | 2093.31 | 0.00 | 135.18 | 0.00 | 181.33 | 0.00 | 11.25 | 0.00 | 181.33 | 12.38 | 0.00 | 0.00 | 168.95 |
| 199+50 | 19950.00 | 50.00 | 1338.49 | 0.00 | 0.00 | 0.00 | 3177.59 | 0.00 | 125.17 | 0.00 | 3358.92 | 150.06 | 0.00 | 0.00 | 3208.86 |
| 200+00 | 20000.00 | 50.00 | 1274.92 | 0.00 | 0.00 | 0.00 | 2419.82 | 0.00 | 0.00 | 0.00 | 5778.74 | 150.06 | 0.00 | 0.00 | 5628.68 |
| 200+50 | 20050.00 | 50.00 | 1164.11 | 0.00 | 0.00 | 0.00 | 2258.36 | 0.00 | 0.00 | 0.00 | 8037.10 | 150.06 | 0.00 | 0.00 | 7887.05 |
| 201+00 | 20100.00 | 50.00 | 1022.77 | 0.00 | 0.00 | 0.00 | 2024.89 | 0.00 | 0.00 | 0.00 | 10061.99 | 150.06 | 0.00 | 0.00 | 9911.93 |
| 201+50 | 20150.00 | 50.00 | 967.72 | 0.00 | 0.00 | 0.00 | 1843.05 | 0.00 | 0.00 | 0.00 | 11905.04 | 150.06 | 0.00 | 0.00 | 11754.98 |
| 202+00 | 20200.00 | 50.00 | 362.91 | 0.00 | 6.62 | 0.00 | 1232.06 | 0.00 | 6.13 | 0.00 | 13137.10 | 156.80 | 0.00 | 0.00 | 12980.30 |
| 202+50 | 20250.00 | 50.00 | 270.63 | 0.00 | 3.03 | 0.00 | 586.61 | 0.00 | 8.94 | 0.00 | 13723.72 | 166.63 | 0.00 | 0.00 | 13557.09 |
| 203+00 | 20300.00 | 50.00 | 251.32 | 0.00 | 0.12 | 0.00 | 483.29 | 0.00 | 2.92 | 0.00 | 14207.00 | 169.84 | 0.00 | 0.00 | 14037.16 |
| 203+50 | 20350.00 | 50.00 | 253.30 | 0.00 | 0.17 | 0.00 | 467.24 | 0.00 | 0.27 | 0.00 | 14674.24 | 170.13 | 0.00 | 0.00 | 14504.11 |
| 204+00 | 20400.00 | 50.00 | 265.33 | 0.00 | 0.01 | 0.00 | 480.21 | 0.00 | 0.17 | 0.00 | 15154.46 | 170.32 | 0.00 | 0.00 | 14984.14 |
| 204+50 | 20450.00 | 50.00 | 240.29 | 0.00 | 0.00 | 0.00 | 468.17 | 0.00 | 0.01 | 0.00 | 15622.62 | 170.33 | 0.00 | 0.00 | 15452.30 |
| 204+55 | 20454.93 | 4.93 | 256.15 | 0.00 | 0.00 | 0.00 | 45.32 | 0.00 | 0.00 | 0.00 | 15667.95 | 170.33 | 0.00 | 0.00 | 15497.62 |
| 204+55 | 20454.93 | 0.00 | 237.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 15667.95 | 170.33 | 0.00 | 0.00 | 15497.62 |
| 205+00 | 20500.00 | 45.07 | 382.71 | 0.00 | 0.00 | 0.00 | 517.40 | 0.00 | 0.00 | 0.00 | 16185.34 | 170.33 | 0.00 | 0.00 | 16015.01 |
| 205+50 | 20550.00 | 50.00 | 217.86 | 0.00 | 0.52 | 0.00 | 556.08 | 0.00 | 0.48 | 0.00 | 16741.42 | 170.86 | 0.00 | 0.00 | 16570.57 |
| 206+00 | 20600.00 | 50.00 | 186.41 | 0.00 | 0.00 | 0.00 | 374.32 | 0.00 | 0.48 | 0.00 | 17115.75 | 171.39 | 0.00 | 0.00 | 16944.36 |
| 206+50 | 20650.00 | 50.00 | 153.16 | 0.00 | 0.00 | 0.00 | 314.42 | 0.00 | 0.00 | 0.00 | 17430.17 | 171.39 | 0.00 | 0.00 | 17258.78 |
| 207+00 | 20700.00 | 50.00 | 132.43 | 0.00 | 0.00 | 0.00 | 264.44 | 0.00 | 0.00 | 0.00 | 17694.60 | 171.39 | 0.00 | 0.00 | 17523.21 |
| 207+50 | 20750.00 | 50.00 | 106.46 | 0.00 | 0.00 | 0.00 | 221.19 | 0.00 | 0.00 | 0.00 | 17915.80 | 171.39 | 0.00 | 0.00 | 17744.41 |
| 208+00 | 20800.00 | 50.00 | 70.32 | 0.00 | 0.00 | 0.00 | 163.69 | 0.00 | 0.00 | 0.00 | 18079.48 | 171.39 | 0.00 | 0.00 | 17908.09 |
| 208+00 | 20800.00 | 0.00 | 46.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 18079.48 | 171.39 | 0.00 | 0.00 | 17908.09 |
| 208+50 | 20850.00 | 50.00 | 97.40 | 0.00 | 0.00 | 0.00 | 133.61 | 0.00 | 0.00 | 0.00 | 18213.09 | 171.39 | 0.00 | 0.00 | 18041.70 |
| 209+00 | 20900.00 | 50.00 | 98.42 | 0.00 | 0.00 | 0.00 | 181.31 | 0.00 | 0.00 | 0.00 | 18394.41 | 171.39 | 0.00 | 0.00 | 18223.02 |
| 209+50 | 20950.00 | 50.00 | 99.37 | 0.00 | 0.00 | 0.00 | 183.14 | 0.00 | 0.00 | 0.00 | 18577.55 | 171.39 | 0.00 | 0.00 | 18406.16 |
| 209+83 BK | 20982.80 | 32.80 | 108.21 | 0.00 | 0.06 | 0.00 | 126.09 | 0.00 | 0.04 | 0.00 | 18703.63 | 171.43 | 0.00 | 0.00 | 18532.20 |
| | | | | | | Column totals | 18703.63 | 0.00 | 155.84 | 0.00 | | | | | |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4699
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

9




FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:31 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew74 PLOT SCALE : 1:1



9

**Division 3 RAMP SW**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 598+46 AH | 59845.80 | 0.00 | 50.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 598+50 | 59850.00 | 4.20 | 44.63 | 0.00 | 0.00 | 0.00 | 7.37 | 0.00 | 0.00 | 0.00 | 7.37 | 0.00 | 0.00 | 0.00 | 7.37 |
| 598+95 | 59895.11 | 45.11 | 39.86 | 0.00 | 0.00 | 0.00 | 70.58 | 0.00 | 0.00 | 0.00 | 77.95 | 0.00 | 0.00 | 0.00 | 77.95 |
| 598+95 | 59895.11 | 0.00 | 107.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 77.95 | 0.00 | 0.00 | 0.00 | 77.95 |
| 599+00 | 59900.00 | 4.89 | 108.74 | 0.00 | 0.00 | 0.00 | 19.61 | 0.00 | 0.00 | 0.00 | 97.56 | 0.00 | 0.00 | 0.00 | 97.56 |
| 599+31 | 59930.66 | 30.66 | 85.69 | 0.00 | 0.00 | 0.00 | 110.39 | 0.00 | 0.00 | 0.00 | 207.96 | 0.00 | 0.00 | 0.00 | 207.96 |
| 599+31 | 59930.66 | 0.00 | 152.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 207.96 | 0.00 | 0.00 | 0.00 | 207.96 |
| 599+50 | 59950.00 | 19.34 | 142.45 | 0.00 | 0.00 | 0.00 | 105.55 | 0.00 | 0.00 | 0.00 | 313.50 | 0.00 | 0.00 | 0.00 | 313.50 |
| 600+00 | 60000.00 | 50.00 | 125.31 | 0.00 | 0.00 | 0.00 | 247.93 | 0.00 | 0.00 | 0.00 | 561.43 | 0.00 | 0.00 | 0.00 | 561.43 |
| 600+50 | 60050.00 | 50.00 | 79.30 | 0.00 | 0.00 | 0.00 | 189.45 | 0.00 | 0.00 | 0.00 | 750.88 | 0.00 | 0.00 | 0.00 | 750.88 |
| 601+00 | 60100.00 | 50.00 | 43.28 | 0.00 | 7.07 | 0.00 | 113.50 | 0.00 | 6.55 | 0.00 | 864.38 | 7.20 | 0.00 | 0.00 | 857.18 |
| 601+50 | 60150.00 | 50.00 | 26.19 | 0.00 | 12.61 | 0.00 | 64.32 | 0.00 | 18.22 | 0.00 | 928.71 | 27.25 | 0.00 | 0.00 | 901.46 |
| 602+00 | 60200.00 | 50.00 | 16.74 | 0.00 | 11.74 | 0.00 | 39.75 | 0.00 | 22.55 | 0.00 | 968.46 | 52.05 | 0.00 | 0.00 | 916.41 |
| 602+50 | 60250.00 | 50.00 | 13.03 | 0.00 | 6.26 | 0.00 | 27.56 | 0.00 | 16.67 | 0.00 | 996.02 | 70.38 | 0.00 | 0.00 | 925.64 |
| 602+68 | 60268.38 | 18.38 | 10.73 | 0.00 | 4.97 | 0.00 | 8.09 | 0.00 | 3.82 | 0.00 | 1004.11 | 74.58 | 0.00 | 0.00 | 929.53 |
| 602+68 | 60268.38 | 0.00 | 18.02 | 0.00 | 4.97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1004.11 | 74.58 | 0.00 | 0.00 | 929.53 |
| 603+00 | 60300.00 | 31.62 | 8.96 | 0.00 | 3.63 | 0.00 | 15.80 | 0.00 | 5.04 | 0.00 | 1019.91 | 80.12 | 0.00 | 0.00 | 939.78 |
| 603+50 | 60350.00 | 50.00 | 0.00 | 0.00 | 11.25 | 0.00 | 8.30 | 0.00 | 13.78 | 0.00 | 1028.20 | 95.28 | 0.00 | 0.00 | 932.92 |
| 603+68 | 60367.95 | 17.95 | 0.00 | 0.00 | 17.07 | 0.00 | 0.00 | 0.00 | 9.41 | 0.00 | 1028.20 | 105.63 | 0.00 | 0.00 | 922.57 |
| 603+68 | 60367.95 | 0.00 | 0.01 | 0.00 | 19.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1028.20 | 105.63 | 0.00 | 0.00 | 922.57 |
| 604+00 | 60400.00 | 32.05 | 0.00 | 0.00 | 36.24 | 0.00 | 0.01 | 0.00 | 33.09 | 0.00 | 1028.21 | 142.04 | 0.00 | 0.00 | 886.17 |
| 604+50 | 60450.00 | 50.00 | 0.00 | 0.00 | 61.34 | 0.00 | 0.00 | 0.00 | 90.35 | 0.00 | 1028.21 | 241.43 | 0.00 | 0.00 | 786.78 |
| 605+00 | 60500.00 | 50.00 | 0.00 | 0.00 | 89.69 | 0.00 | 0.00 | 0.00 | 139.84 | 0.00 | 1028.21 | 395.25 | 0.00 | 0.00 | 632.96 |
| 605+20 BK | 60519.50 | 19.50 | 0.00 | 0.00 | 117.54 | 0.00 | 0.00 | 0.00 | 74.83 | 0.00 | 1028.21 | 477.57 | 0.00 | 0.00 | 550.64 |
| | | | | | | Column totals | 1028.21 | 0.00 | 434.15 | 0.00 | | | | | |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4700
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

**Division 3 RAMP WS**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 549+30 AH | 54930.42 | 0.00 | 242.57 | 0.00 | 112.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 549+50 | 54950.00 | 19.58 | 226.90 | 0.00 | 127.14 | 0.00 | 170.23 | 0.00 | 86.75 | 0.00 | 170.23 | 95.42 | 0.00 | 0.00 | 74.81 |
| 549+80 | 54980.42 | 30.42 | 196.22 | 0.00 | 155.37 | 0.00 | 238.36 | 0.00 | 159.15 | 0.00 | 408.58 | 270.48 | 0.00 | 0.00 | 138.10 |
| 549+80 | 54980.42 | 0.00 | 228.56 | 0.00 | 155.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 408.58 | 270.48 | 0.00 | 0.00 | 138.10 |
| 550+00 | 55000.00 | 19.58 | 214.90 | 0.00 | 223.44 | 0.00 | 160.80 | 0.00 | 137.36 | 0.00 | 569.38 | 421.58 | 0.00 | 0.00 | 147.80 |
| 550+50 | 55050.00 | 50.00 | 140.52 | 0.00 | 273.56 | 0.00 | 329.09 | 0.00 | 460.19 | 0.00 | 898.47 | 927.78 | 0.00 | 0.00 | -29.31 |
| 550+80 | 55080.42 | 30.42 | 91.17 | 0.00 | 269.22 | 0.00 | 130.52 | 0.00 | 305.77 | 0.00 | 1028.99 | 1264.13 | 0.00 | 0.00 | -235.14 |
| 550+80 | 55080.42 | 0.00 | 91.15 | 0.00 | 1.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1028.99 | 1264.13 | 0.00 | 0.00 | -235.14 |
| 551+00 | 55100.00 | 19.58 | 73.60 | 0.00 | 13.45 | 0.00 | 59.74 | 0.00 | 5.25 | 0.00 | 1088.73 | 1269.91 | 0.00 | 0.00 | -181.18 |
| 551+50 | 55150.00 | 50.00 | 30.85 | 0.00 | 39.01 | 0.00 | 96.71 | 0.00 | 48.57 | 0.00 | 1185.44 | 1323.34 | 0.00 | 0.00 | -137.90 |
| 551+80 | 55180.42 | 30.42 | 17.97 | 0.00 | 43.57 | 0.00 | 27.50 | 0.00 | 46.52 | 0.00 | 1212.94 | 1374.51 | 0.00 | 0.00 | -161.57 |
| 551+80 | 55180.42 | 0.00 | 17.96 | 0.00 | 8.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1212.94 | 1374.51 | 0.00 | 0.00 | -161.57 |
| 552+00 | 55200.00 | 19.58 | 11.73 | 0.00 | 10.92 | 0.00 | 10.77 | 0.00 | 6.99 | 0.00 | 1223.71 | 1382.20 | 0.00 | 0.00 | -158.49 |
| 552+30 BK | 55230.42 | 30.42 | 5.35 | 0.00 | 13.19 | 0.00 | 9.62 | 0.00 | 13.58 | 0.00 | 1233.33 | 1397.14 | 0.00 | 0.00 | -163.81 |
| | | | | | | Column totals | 1233.33 | 0.00 | 1270.12 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4701
September 14, 2015

**Division 3 RAMP NE**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 537+60 AH | 53760.00 | 0.00 | 10.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 537+71 | 53771.09 | 11.09 | 4.39 | 0.00 | 1.05 | 0.00 | 2.97 | 0.00 | 0.22 | 0.00 | 2.97 | 0.24 | 0.00 | 0.00 | 2.73 |
| 538+00 | 53800.00 | 28.91 | 0.39 | 0.00 | 980.75 | 0.00 | 2.56 | 0.00 | 525.63 | 0.00 | 5.53 | 578.43 | 0.00 | 0.00 | -572.90 |
| 538+09 BK | 53808.60 | 8.60 | 0.13 | 0.00 | 262.07 | 0.00 | 0.08 | 0.00 | 197.93 | 0.00 | 5.61 | 796.15 | 0.00 | 0.00 | -790.54 |
| | | | | | | | | | | | | | | | |
| 550+36 AH | 55036.00 | 0.00 | 57.46 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 550+50 | 55050.00 | 14.00 | 42.95 | 0.00 | 561.76 | 0.00 | 26.03 | 0.00 | 145.67 | 0.00 | 26.03 | 160.23 | 0.00 | 0.00 | -134.20 |
| 551+00 | 55100.00 | 50.00 | 118.29 | 0.00 | 508.40 | 0.00 | 149.30 | 0.00 | 990.89 | 0.00 | 149.30 | 1089.98 | 0.00 | 0.00 | -1074.88 |
| 551+50 | 55150.00 | 50.00 | 94.91 | 0.00 | 438.63 | 0.00 | 197.41 | 0.00 | 876.88 | 0.00 | 346.70 | 2054.55 | 0.00 | 0.00 | -1842.04 |
| 552+00 | 55200.00 | 50.00 | 69.43 | 0.00 | 366.25 | 0.00 | 152.17 | 0.00 | 745.26 | 0.00 | 498.87 | 2874.33 | 0.00 | 0.00 | -2509.66 |
| 552+50 | 55250.00 | 50.00 | 65.18 | 0.00 | 310.84 | 0.00 | 124.64 | 0.00 | 626.94 | 0.00 | 623.51 | 3563.96 | 0.00 | 0.00 | -3074.65 |
| 553+00 | 55300.00 | 50.00 | 60.84 | 0.00 | 270.32 | 0.00 | 116.69 | 0.00 | 538.11 | 0.00 | 740.19 | 4155.88 | 0.00 | 0.00 | -3549.89 |
| 553+50 | 55350.00 | 50.00 | 53.74 | 0.00 | 237.54 | 0.00 | 106.09 | 0.00 | 470.24 | 0.00 | 846.29 | 4673.15 | 0.00 | 0.00 | -3961.06 |
| 554+00 | 55400.00 | 50.00 | 46.67 | 0.00 | 206.11 | 0.00 | 92.97 | 0.00 | 410.79 | 0.00 | 939.26 | 5125.01 | 0.00 | 0.00 | -4319.95 |
| 554+50 | 55450.00 | 50.00 | 40.70 | 0.00 | 174.70 | 0.00 | 80.90 | 0.00 | 352.60 | 0.00 | 1020.16 | 5512.87 | 0.00 | 0.00 | -4626.92 |
| 555+00 | 55500.00 | 50.00 | 35.22 | 0.00 | 144.95 | 0.00 | 70.30 | 0.00 | 295.97 | 0.00 | 1090.45 | 5838.44 | 0.00 | 0.00 | -4882.19 |
| 555+50 | 55550.00 | 50.00 | 35.16 | 0.00 | 108.06 | 0.00 | 65.17 | 0.00 | 234.27 | 0.00 | 1155.62 | 6096.14 | 0.00 | 0.00 | -5074.72 |
| 556+00 | 55600.00 | 50.00 | 58.37 | 0.00 | 76.51 | 0.00 | 86.60 | 0.00 | 170.90 | 0.00 | 1242.22 | 6284.13 | 0.00 | 0.00 | -5176.11 |
| 556+50 | 55650.00 | 50.00 | 32.65 | 0.00 | 51.52 | 0.00 | 84.28 | 0.00 | 118.55 | 0.00 | 1326.50 | 6414.53 | 0.00 | 0.00 | -5222.23 |
| 557+00 | 55700.00 | 50.00 | 48.53 | 0.00 | 34.62 | 0.00 | 75.17 | 0.00 | 79.76 | 0.00 | 1401.67 | 6502.26 | 0.00 | 0.00 | -5234.80 |
| 557+50 | 55750.00 | 50.00 | 60.38 | 0.00 | 22.50 | 0.00 | 100.84 | 0.00 | 52.89 | 0.00 | 1502.51 | 6560.44 | 0.00 | 0.00 | -5192.13 |
| 558+00 | 55800.00 | 50.00 | 76.40 | 0.00 | 13.59 | 0.00 | 126.65 | 0.00 | 33.42 | 0.00 | 1629.16 | 6597.20 | 0.00 | 0.00 | -5102.24 |
| 558+50 | 55850.00 | 50.00 | 87.03 | 0.00 | 7.34 | 0.00 | 151.32 | 0.00 | 19.38 | 0.00 | 1780.48 | 6618.52 | 0.00 | 0.00 | -4972.24 |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4702
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 3 RAMP NE**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 559+00 | 55900.00 | 50.00 | 111.61 | 0.00 | 0.97 | 0.00 | 183.93 | 0.00 | 7.69 | 0.00 | 1964.41 | 6626.98 | 0.00 | 0.00 | -4796.78 |
| 559+50 | 55950.00 | 50.00 | 93.99 | 0.00 | 0.00 | 0.00 | 190.37 | 0.00 | 0.90 | 0.00 | 2154.78 | 6627.97 | 0.00 | 0.00 | -4607.39 |
| 560+00 | 56000.00 | 50.00 | 89.30 | 0.00 | 0.00 | 0.00 | 169.71 | 0.00 | 0.00 | 0.00 | 2324.49 | 6627.97 | 0.00 | 0.00 | -4437.68 |
| 560+50 | 56050.00 | 50.00 | 90.13 | 0.00 | 0.00 | 0.00 | 166.14 | 0.00 | 0.00 | 0.00 | 2490.63 | 6627.97 | 0.00 | 0.00 | -4271.54 |
| 561+00 | 56100.00 | 50.00 | 90.11 | 0.00 | 0.00 | 0.00 | 166.89 | 0.00 | 0.00 | 0.00 | 2657.52 | 6627.97 | 0.00 | 0.00 | -4104.65 |
| 561+50 | 56150.00 | 50.00 | 110.43 | 0.00 | 0.00 | 0.00 | 185.69 | 0.00 | 0.00 | 0.00 | 2843.20 | 6627.97 | 0.00 | 0.00 | -3918.97 |
| 561+55 BK | 56155.00 | 5.00 | 204.23 | 0.00 | 0.00 | 0.00 | 29.14 | 0.00 | 0.00 | 0.00 | 2872.34 | 6627.97 | 0.00 | 0.00 | -3889.83 |
| | | | | | Column totals | | 2903.98 | 0.00 | 6894.87 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4703
September 14, 2015

**Division 3 RAMP EN**

| STATION | Real Station | Distance | AREA (SF) | | | | Incremental Vol (CY) (Unadjusted) | | | | Cumulative Vol (CY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Salvaged/ | | | | Expanded | Expanded | Reduced | Mass |
| | | | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Unusable Pavement Material | Fill | EBS | Cut 1.0 | Fill 1.1 | EBS Backfill 1.3 | EBS In Fill 0.8 | Ordinate |
| | | | | | | | Note 1 | Note 2 | Note 3 | | | | Note 4 | Note 5 | Note 6 |
| 538+65 AH | 53864.58 | 0.00 | 403.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 539+00 | 53900.00 | 35.42 | 398.26 | 0.00 | 0.00 | 0.00 | 525.59 | 0.00 | 0.00 | 0.00 | 525.59 | 0.00 | 0.00 | 0.00 | 525.59 |
| 539+50 | 53950.00 | 50.00 | 496.32 | 0.00 | 0.00 | 0.00 | 828.31 | 0.00 | 0.00 | 0.00 | 1353.91 | 0.00 | 0.00 | 0.00 | 1353.91 |
| 540+00 | 54000.00 | 50.00 | 413.08 | 0.00 | 0.00 | 0.00 | 842.04 | 0.00 | 0.00 | 0.00 | 2195.95 | 0.00 | 0.00 | 0.00 | 2195.95 |
| 540+29 | 54029.42 | 29.42 | 353.82 | 0.00 | 0.00 | 0.00 | 417.82 | 0.00 | 0.00 | 0.00 | 2613.76 | 0.00 | 0.00 | 0.00 | 2613.76 |
| 540+29 | 54029.42 | 0.00 | 205.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2613.76 | 0.00 | 0.00 | 0.00 | 2613.76 |
| 540+50 | 54050.00 | 20.58 | 180.99 | 0.00 | 0.00 | 0.00 | 147.44 | 0.00 | 0.00 | 0.00 | 2761.21 | 0.00 | 0.00 | 0.00 | 2761.21 |
| 541+00 | 54100.00 | 50.00 | 116.88 | 0.00 | 0.00 | 0.00 | 275.81 | 0.00 | 0.00 | 0.00 | 3037.01 | 0.00 | 0.00 | 0.00 | 3037.01 |
| 541+50 | 54150.00 | 50.00 | 78.68 | 0.00 | 0.00 | 0.00 | 181.07 | 0.00 | 0.00 | 0.00 | 3218.09 | 0.00 | 0.00 | 0.00 | 3218.09 |
| 542+00 | 54200.00 | 50.00 | 51.00 | 0.00 | 0.00 | 0.00 | 120.07 | 0.00 | 0.00 | 0.00 | 3338.16 | 0.00 | 0.00 | 0.00 | 3338.16 |
| 542+50 | 54250.00 | 50.00 | 31.03 | 0.00 | 0.00 | 0.00 | 75.95 | 0.00 | 0.00 | 0.00 | 3414.12 | 0.00 | 0.00 | 0.00 | 3414.12 |
| 542+66 BK | 54265.62 | 15.62 | 26.18 | 0.00 | 0.00 | 0.00 | 16.55 | 0.00 | 0.00 | 0.00 | 3430.66 | 0.00 | 0.00 | 0.00 | 3430.66 |
| | | Column totals | | | | | 3430.66 | 0.00 | 0.00 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4704
September 14, 2015



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:31 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew79 PLOT SCALE : 1:1

**Division 3 RAMP GA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 765+08 AH | 76507.63 | 0.00 | 27.31 | 0.00 | 2.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 765+50 | 76550.00 | 42.37 | 32.76 | 0.00 | 0.00 | 0.00 | 47.13 | 0.00 | 2.09 | 0.00 | 47.13 | 2.30 | 0.00 | 0.00 | 44.84 |
| 766+00 | 76600.00 | 50.00 | 26.62 | 0.00 | 0.00 | 0.00 | 54.98 | 0.00 | 0.00 | 0.00 | 102.11 | 2.30 | 0.00 | 0.00 | 99.82 |
| 766+00 | 76600.00 | 0.00 | 82.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 102.11 | 2.30 | 0.00 | 0.00 | 99.82 |
| 766+50 | 76650.00 | 50.00 | 79.58 | 0.00 | 0.05 | 0.00 | 149.68 | 0.00 | 0.05 | 0.00 | 251.79 | 2.35 | 0.00 | 0.00 | 249.44 |
| 767+00 | 76700.00 | 50.00 | 44.45 | 0.00 | 5.39 | 0.00 | 114.84 | 0.00 | 5.04 | 0.00 | 366.63 | 7.89 | 0.00 | 0.00 | 358.75 |
| 767+50 | 76750.00 | 50.00 | 14.70 | 0.00 | 19.18 | 0.00 | 54.77 | 0.00 | 22.75 | 0.00 | 421.40 | 32.91 | 0.00 | 0.00 | 388.49 |
| 768+00 | 76800.00 | 50.00 | 1.55 | 0.00 | 33.54 | 0.00 | 15.05 | 0.00 | 48.81 | 0.00 | 436.45 | 86.61 | 0.00 | 0.00 | 349.84 |
| 768+17 BK | 76816.80 | 16.80 | 1.23 | 0.00 | 36.92 | 0.00 | 0.86 | 0.00 | 21.92 | 0.00 | 437.31 | 110.72 | 0.00 | 0.00 | 326.59 |
| | | | | | | Column totals | 437.31 | 0.00 | 100.66 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4705
September 14, 2015

**Division 3 RAMP SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 566+13 AH | 56612.52 | 0.00 | 0.01 | 0.00 | 3.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 566+50 | 56650.00 | 37.48 | 0.14 | 0.00 | 0.99 | 0.00 | 0.10 | 0.00 | 2.95 | 0.00 | 0.10 | 3.24 | 0.00 | 0.00 | -3.14 |
| 566+66 | 56665.60 | 15.60 | 0.14 | 0.00 | 1.80 | 0.00 | 0.08 | 0.00 | 0.81 | 0.00 | 0.19 | 4.13 | 0.00 | 0.00 | -3.95 |
| 566+66 | 56665.60 | 0.00 | 172.09 | 0.00 | 14.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.19 | 4.13 | 0.00 | 0.00 | -3.95 |
| 567+00 | 56700.00 | 34.40 | 0.14 | 0.00 | 8.91 | 0.00 | 109.72 | 0.00 | 15.12 | 0.00 | 109.90 | 20.77 | 0.00 | 0.00 | 89.13 |
| 567+50 | 56750.00 | 50.00 | 0.14 | 0.00 | 44.61 | 0.00 | 0.26 | 0.00 | 49.56 | 0.00 | 110.16 | 75.28 | 0.00 | 0.00 | 34.88 |
| 568+00 | 56800.00 | 50.00 | 0.14 | 0.00 | 49.15 | 0.00 | 0.26 | 0.00 | 86.81 | 0.00 | 110.42 | 170.77 | 0.00 | 0.00 | -60.35 |
| 568+50 | 56850.00 | 50.00 | 0.14 | 0.00 | 41.62 | 0.00 | 0.26 | 0.00 | 84.05 | 0.00 | 110.68 | 263.23 | 0.00 | 0.00 | -152.55 |
| 569+00 | 56900.00 | 50.00 | 0.14 | 0.00 | 36.17 | 0.00 | 0.26 | 0.00 | 72.03 | 0.00 | 110.94 | 342.46 | 0.00 | 0.00 | -231.52 |
| 569+50 | 56950.00 | 50.00 | 0.14 | 0.00 | 32.06 | 0.00 | 0.26 | 0.00 | 63.18 | 0.00 | 111.20 | 411.95 | 0.00 | 0.00 | -300.75 |
| 570+00 | 57000.00 | 50.00 | 0.15 | 0.00 | 19.34 | 0.00 | 0.27 | 0.00 | 47.59 | 0.00 | 111.47 | 464.30 | 0.00 | 0.00 | -352.83 |
| 570+50 | 57050.00 | 50.00 | 0.22 | 0.00 | 13.91 | 0.00 | 0.34 | 0.00 | 30.79 | 0.00 | 111.81 | 498.17 | 0.00 | 0.00 | -386.36 |
| 570+86 BK | 57086.00 | 36.00 | 27.68 | 0.00 | 7.47 | 0.00 | 18.60 | 0.00 | 14.25 | 0.00 | 130.41 | 513.85 | 0.00 | 0.00 | -383.44 |
| | | | | | | Column totals | 130.41 | 0.00 | 467.13 | 0.00 | | | | | |

3

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4706
September 14, 2015

**Division 3 W. WISCONSIN AVENUE**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20+17 AH | 2017.44 | 0.00 | 37.15 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20+50 | 2050.00 | 32.56 | 36.70 | 0.00 | 1.05 | 0.00 | 44.53 | 0.00 | 0.66 | 0.00 | 44.53 | 0.72 | 0.00 | 0.00 | 43.81 |
| 21+00 | 2100.00 | 50.00 | 36.95 | 0.00 | 1.71 | 0.00 | 68.19 | 0.00 | 2.56 | 0.00 | 112.72 | 3.53 | 0.00 | 0.00 | 109.19 |
| 21+13 | 2113.06 | 13.06 | 37.42 | 0.00 | 2.15 | 0.00 | 17.99 | 0.00 | 0.93 | 0.00 | 130.71 | 4.56 | 0.00 | 0.00 | 126.15 |
| 21+50 | 2150.00 | 36.94 | 36.96 | 0.00 | 3.52 | 0.00 | 50.88 | 0.00 | 3.88 | 0.00 | 181.59 | 8.83 | 0.00 | 0.00 | 172.76 |
| 22+00 | 2200.00 | 50.00 | 40.98 | 0.00 | 3.22 | 0.00 | 72.17 | 0.00 | 6.24 | 0.00 | 253.76 | 15.69 | 0.00 | 0.00 | 238.07 |
| 22+50 | 2250.00 | 50.00 | 45.04 | 0.00 | 2.94 | 0.00 | 79.65 | 0.00 | 5.70 | 0.00 | 333.41 | 21.97 | 0.00 | 0.00 | 311.44 |
| 23+00 | 2300.00 | 50.00 | 50.95 | 0.00 | 2.68 | 0.00 | 88.88 | 0.00 | 5.20 | 0.00 | 422.29 | 27.69 | 0.00 | 0.00 | 394.60 |
| 23+50 | 2350.00 | 50.00 | 51.72 | 0.00 | 1.80 | 0.00 | 95.06 | 0.00 | 4.15 | 0.00 | 517.35 | 32.25 | 0.00 | 0.00 | 485.10 |
| 24+00 | 2400.00 | 50.00 | 55.22 | 0.00 | 1.26 | 0.00 | 99.02 | 0.00 | 2.83 | 0.00 | 616.37 | 35.37 | 0.00 | 0.00 | 581.00 |
| 24+50 | 2450.00 | 50.00 | 59.78 | 0.00 | 1.67 | 0.00 | 106.48 | 0.00 | 2.71 | 0.00 | 722.85 | 38.35 | 0.00 | 0.00 | 684.50 |
| 25+00 | 2500.00 | 50.00 | 68.26 | 0.00 | 8.68 | 0.00 | 118.56 | 0.00 | 9.58 | 0.00 | 841.41 | 48.90 | 0.00 | 0.00 | 792.51 |
| 25+50 | 2550.00 | 50.00 | 56.25 | 0.00 | 12.60 | 0.00 | 115.29 | 0.00 | 19.70 | 0.00 | 956.69 | 70.57 | 0.00 | 0.00 | 886.12 |
| 26+00 | 2600.00 | 50.00 | 31.17 | 0.00 | 14.14 | 0.00 | 80.94 | 0.00 | 24.76 | 0.00 | 1037.64 | 97.81 | 0.00 | 0.00 | 939.83 |
| 26+23 | 2623.01 | 23.01 | 21.78 | 0.00 | 29.89 | 0.00 | 22.56 | 0.00 | 18.76 | 0.00 | 1060.20 | 118.44 | 0.00 | 0.00 | 941.76 |
| 26+23 | 2623.01 | 0.00 | 28.88 | 0.00 | 29.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1060.20 | 118.44 | 0.00 | 0.00 | 941.76 |
| 26+50 | 2650.00 | 26.99 | 10.42 | 0.00 | 62.71 | 0.00 | 19.64 | 0.00 | 46.29 | 0.00 | 1079.84 | 169.36 | 0.00 | 0.00 | 910.48 |
| 27+00 | 2700.00 | 50.00 | 0.00 | 0.00 | 453.42 | 0.00 | 9.65 | 0.00 | 477.90 | 0.00 | 1089.49 | 695.05 | 0.00 | 0.00 | 394.44 |
| 27+37 | 2737.17 | 37.17 | 0.00 | 0.00 | 1660.56 | 0.00 | 0.00 | 0.00 | 1455.12 | 0.00 | 1089.49 | 2295.68 | 0.00 | 0.00 | -1206.19 |
| 27+42 BK | 2741.94 | 4.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 146.68 | 0.00 | 1089.49 | 2457.03 | 0.00 | 0.00 | -1367.54 |
| | | | | | | Column totals | 1089.49 | 0.00 | 2233.67 | 0.00 | | | | | |

3

1

Addendum No. 03
ID 1060-33-81
Revised Sheet 4707
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

**Division 3 N. 97TH STREET (TT)**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Salvaged/ Cut Note 1 | Unusable Pavement Material Note 2 | Fill Note 3 | EBS | Cumulative Vol (CY) Cut 1.0 | Fill 1.1 | Expanded EBS Backfill 1.3 Note 4 | Expanded EBS In Fill 0.8 Note 5 | Reduced Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 46+13 AH | 4613.39 | 0.00 | 49.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 46+50 | 4650.00 | 36.61 | 27.66 | 0.00 | 0.16 | 0.00 | 52.62 | 0.00 | 0.11 | 0.00 | 52.62 | 0.12 | 0.00 | 0.00 | 52.50 |
| 47+00 | 4700.00 | 50.00 | 21.27 | 0.00 | 1.77 | 0.00 | 45.31 | 0.00 | 1.79 | 0.00 | 97.93 | 2.09 | 0.00 | 0.00 | 95.84 |
| 47+50 | 4750.00 | 50.00 | 18.35 | 0.00 | 1.79 | 0.00 | 36.69 | 0.00 | 3.30 | 0.00 | 134.61 | 5.71 | 0.00 | 0.00 | 128.90 |
| 48+00 | 4800.00 | 50.00 | 9.39 | 0.00 | 2.66 | 0.00 | 25.69 | 0.00 | 4.12 | 0.00 | 160.30 | 10.24 | 0.00 | 0.00 | 150.06 |
| 48+50 | 4850.00 | 50.00 | 2.22 | 0.00 | 6.95 | 0.00 | 10.75 | 0.00 | 8.90 | 0.00 | 171.05 | 20.03 | 0.00 | 0.00 | 151.02 |
| 49+00 | 4900.00 | 50.00 | 0.00 | 0.00 | 13.54 | 0.00 | 2.06 | 0.00 | 18.97 | 0.00 | 173.10 | 40.90 | 0.00 | 0.00 | 132.20 |
| 49+50 | 4950.00 | 50.00 | 2.37 | 0.00 | 6.22 | 0.00 | 2.19 | 0.00 | 18.30 | 0.00 | 175.30 | 61.03 | 0.00 | 0.00 | 114.27 |
| 49+71 BK | 4971.38 | 21.38 | 3.19 | 0.00 | 0.00 | 0.00 | 2.20 | 0.00 | 2.46 | 0.00 | 177.50 | 63.74 | 0.00 | 0.00 | 113.77 |
| | | | | | | Column totals | 177.50 | 0.00 | 57.94 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4708
September 14, 2015


9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:32 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew83 PLOT SCALE : 1:1

**Division 3 NSH**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11+58 AH | 1158.37 | 0.00 | 34.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12+00 | 1200.00 | 41.63 | 40.87 | 0.00 | 0.00 | 0.00 | 57.80 | 0.00 | 0.00 | 0.00 | 57.80 | 0.00 | 0.00 | 0.00 | 57.80 |
| 12+50 | 1250.00 | 50.00 | 40.53 | 0.00 | 0.00 | 0.00 | 75.37 | 0.00 | 0.00 | 0.00 | 133.17 | 0.00 | 0.00 | 0.00 | 133.17 |
| 13+00 | 1300.00 | 50.00 | 43.20 | 0.00 | 0.00 | 0.00 | 77.53 | 0.00 | 0.00 | 0.00 | 210.69 | 0.00 | 0.00 | 0.00 | 210.69 |
| 13+50 | 1350.00 | 50.00 | 44.76 | 0.00 | 0.00 | 0.00 | 81.44 | 0.00 | 0.00 | 0.00 | 292.14 | 0.00 | 0.00 | 0.00 | 292.14 |
| 14+00 | 1400.00 | 50.00 | 48.41 | 0.00 | 0.00 | 0.00 | 86.27 | 0.00 | 0.00 | 0.00 | 378.41 | 0.00 | 0.00 | 0.00 | 378.41 |
| 14+50 | 1450.00 | 50.00 | 54.87 | 0.00 | 0.00 | 0.00 | 95.63 | 0.00 | 0.00 | 0.00 | 474.04 | 0.00 | 0.00 | 0.00 | 474.04 |
| 15+00 | 1500.00 | 50.00 | 51.55 | 0.00 | 0.00 | 0.00 | 98.54 | 0.00 | 0.00 | 0.00 | 572.57 | 0.00 | 0.00 | 0.00 | 572.57 |
| 15+50 | 1550.00 | 50.00 | 51.79 | 0.00 | 0.00 | 0.00 | 95.69 | 0.00 | 0.00 | 0.00 | 668.26 | 0.00 | 0.00 | 0.00 | 668.26 |
| 16+00 | 1600.00 | 50.00 | 38.11 | 0.00 | 0.00 | 0.00 | 83.24 | 0.00 | 0.00 | 0.00 | 751.50 | 0.00 | 0.00 | 0.00 | 751.50 |
| 16+50 | 1650.00 | 50.00 | 35.62 | 0.00 | 0.00 | 0.00 | 68.27 | 0.00 | 0.00 | 0.00 | 819.77 | 0.00 | 0.00 | 0.00 | 819.77 |
| 17+00 | 1700.00 | 50.00 | 20.19 | 0.00 | 0.01 | 0.00 | 51.68 | 0.00 | 0.01 | 0.00 | 871.44 | 0.01 | 0.00 | 0.00 | 871.43 |
| 17+50 | 1750.00 | 50.00 | 12.90 | 0.00 | 0.10 | 0.00 | 30.64 | 0.00 | 0.10 | 0.00 | 902.08 | 0.12 | 0.00 | 0.00 | 901.96 |
| 18+00 | 1800.00 | 50.00 | 7.33 | 0.00 | 0.29 | 0.00 | 18.73 | 0.00 | 0.36 | 0.00 | 920.81 | 0.52 | 0.00 | 0.00 | 920.30 |
| 18+50 | 1850.00 | 50.00 | 3.64 | 0.00 | 0.68 | 0.00 | 10.16 | 0.00 | 0.90 | 0.00 | 930.97 | 1.51 | 0.00 | 0.00 | 929.46 |
| 19+00 | 1900.00 | 50.00 | 1.30 | 0.00 | 1.36 | 0.00 | 4.57 | 0.00 | 1.89 | 0.00 | 935.55 | 3.59 | 0.00 | 0.00 | 931.96 |
| 19+50 | 1950.00 | 50.00 | 0.27 | 0.00 | 2.22 | 0.00 | 1.45 | 0.00 | 3.31 | 0.00 | 937.00 | 7.23 | 0.00 | 0.00 | 929.77 |
| 20+00 BK | 2000.00 | 50.00 | 0.01 | 0.00 | 3.09 | 0.00 | 0.26 | 0.00 | 4.92 | 0.00 | 937.26 | 12.64 | 0.00 | 0.00 | 924.62 |
| | | | | | | Column totals | 937.26 | 0.00 | 11.49 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4709
September 14, 2015


9

PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4709 | E

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:32 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew84 PLOT SCALE : 1:1

**Division 3 EWP**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10+62 AH | 1062.20 | 0.00 | 2.96 | 0.00 | 9.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11+00 | 1100.00 | 37.80 | 3.57 | 0.00 | 10.59 | 0.00 | 4.57 | 0.00 | 14.18 | 0.00 | 4.57 | 15.60 | 0.00 | 0.00 | -11.03 |
| 11+50 | 1150.00 | 50.00 | 4.99 | 0.00 | 10.88 | 0.00 | 7.93 | 0.00 | 19.88 | 0.00 | 12.50 | 37.47 | 0.00 | 0.00 | -24.97 |
| 12+00 | 1200.00 | 50.00 | 0.00 | 0.00 | 16.86 | 0.00 | 4.62 | 0.00 | 25.69 | 0.00 | 17.12 | 65.72 | 0.00 | 0.00 | -48.60 |
| 12+50 | 1250.00 | 50.00 | 9.87 | 0.00 | 3.90 | 0.00 | 9.14 | 0.00 | 19.22 | 0.00 | 26.26 | 86.87 | 0.00 | 0.00 | -60.61 |
| 13+00 | 1300.00 | 50.00 | 28.80 | 0.00 | 21.73 | 0.00 | 35.81 | 0.00 | 23.73 | 0.00 | 62.06 | 112.97 | 0.00 | 0.00 | -50.91 |
| 13+50 | 1350.00 | 50.00 | 34.73 | 0.00 | 26.43 | 0.00 | 58.82 | 0.00 | 44.59 | 0.00 | 120.89 | 162.02 | 0.00 | 0.00 | -41.14 |
| 14+00 | 1400.00 | 50.00 | 39.88 | 0.00 | 32.06 | 0.00 | 69.08 | 0.00 | 54.16 | 0.00 | 189.97 | 221.60 | 0.00 | 0.00 | -31.63 |
| 14+50 | 1450.00 | 50.00 | 22.09 | 0.00 | 49.64 | 0.00 | 57.38 | 0.00 | 75.65 | 0.00 | 247.35 | 304.81 | 0.00 | 0.00 | -57.46 |
| 15+00 | 1500.00 | 50.00 | 3.33 | 0.00 | 78.00 | 0.00 | 23.54 | 0.00 | 118.19 | 0.00 | 270.89 | 434.81 | 0.00 | 0.00 | -163.93 |
| 15+50 | 1550.00 | 50.00 | 0.00 | 0.00 | 119.31 | 0.00 | 3.08 | 0.00 | 182.69 | 0.00 | 273.97 | 635.78 | 0.00 | 0.00 | -361.81 |
| 16+00 | 1600.00 | 50.00 | 0.00 | 0.00 | 188.75 | 0.00 | 0.00 | 0.00 | 285.24 | 0.00 | 273.97 | 949.54 | 0.00 | 0.00 | -675.57 |
| 16+50 | 1650.00 | 50.00 | 0.00 | 0.00 | 96.25 | 0.00 | 0.00 | 0.00 | 263.89 | 0.00 | 273.97 | 1239.82 | 0.00 | 0.00 | -965.85 |
| 17+00 | 1700.00 | 50.00 | 0.00 | 0.00 | 86.25 | 0.00 | 0.00 | 0.00 | 168.98 | 0.00 | 273.97 | 1425.70 | 0.00 | 0.00 | -1151.73 |
| 17+50 | 1750.00 | 50.00 | 0.00 | 0.00 | 61.81 | 0.00 | 0.00 | 0.00 | 137.09 | 0.00 | 273.97 | 1576.50 | 0.00 | 0.00 | -1302.53 |
| 18+00 | 1800.00 | 50.00 | 0.00 | 0.00 | 101.41 | 0.00 | 0.00 | 0.00 | 151.13 | 0.00 | 273.97 | 1742.74 | 0.00 | 0.00 | -1468.77 |
| 18+50 | 1850.00 | 50.00 | 1.95 | 0.00 | 56.79 | 0.00 | 1.81 | 0.00 | 146.48 | 0.00 | 275.77 | 1903.87 | 0.00 | 0.00 | -1628.10 |
| 19+00 | 1900.00 | 50.00 | 9.63 | 0.00 | 22.42 | 0.00 | 10.72 | 0.00 | 73.34 | 0.00 | 286.50 | 1984.55 | 0.00 | 0.00 | -1698.05 |
| 19+50 | 1950.00 | 50.00 | 20.77 | 0.00 | 5.12 | 0.00 | 28.15 | 0.00 | 25.50 | 0.00 | 314.65 | 2012.60 | 0.00 | 0.00 | -1697.95 |
| 20+00 | 2000.00 | 50.00 | 39.20 | 0.00 | 0.01 | 0.00 | 55.53 | 0.00 | 4.75 | 0.00 | 370.17 | 2017.82 | 0.00 | 0.00 | -1647.65 |
| 20+50 | 2050.00 | 50.00 | 37.97 | 0.00 | 0.00 | 0.00 | 71.45 | 0.00 | 0.01 | 0.00 | 441.63 | 2017.83 | 0.00 | 0.00 | -1576.21 |
| 21+00 | 2100.00 | 50.00 | 31.98 | 0.00 | 0.08 | 0.00 | 64.77 | 0.00 | 0.07 | 0.00 | 506.40 | 2017.92 | 0.00 | 0.00 | -1511.52 |
| 21+50 | 2150.00 | 50.00 | 3.60 | 0.00 | 16.82 | 0.00 | 32.94 | 0.00 | 15.65 | 0.00 | 539.34 | 2035.13 | 0.00 | 0.00 | -1495.79 |
| 22+00 | 2200.00 | 50.00 | 3.62 | 0.00 | 10.20 | 0.00 | 6.69 | 0.00 | 25.02 | 0.00 | 546.02 | 2062.65 | 0.00 | 0.00 | -1516.62 |
| 22+50 | 2250.00 | 50.00 | 3.62 | 0.00 | 5.67 | 0.00 | 6.70 | 0.00 | 14.69 | 0.00 | 552.73 | 2078.81 | 0.00 | 0.00 | -1526.08 |
| 23+00 | 2300.00 | 50.00 | 3.62 | 0.00 | 13.01 | 0.00 | 6.70 | 0.00 | 17.30 | 0.00 | 559.43 | 2097.84 | 0.00 | 0.00 | -1538.41 |
| 23+50 | 2350.00 | 50.00 | 3.61 | 0.00 | 10.23 | 0.00 | 6.69 | 0.00 | 21.52 | 0.00 | 566.13 | 2121.51 | 0.00 | 0.00 | -1555.38 |
| 23+85 BK | 2384.76 | 34.76 | 4.02 | 0.00 | 0.00 | 0.00 | 4.91 | 0.00 | 6.59 | 0.00 | 571.04 | 2128.75 | 0.00 | 0.00 | -1557.72 |
| | | | | | | Column totals | 571.04 | 0.00 | 1935.23 | 0.00 | | | | | |

3

1

Addendum No. 03
ID 1060-33-81
Revised Sheet 4710
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:32 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew85 PLOT SCALE : 1:1

**Division 3 EWS**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13+30 AH | 1329.70 | 0.00 | 0.00 | 0.00 | 1.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13+50 | 1350.00 | 20.30 | 0.00 | 0.00 | 2.49 | 0.00 | 0.00 | 0.00 | 1.32 | 0.00 | 0.00 | 1.46 | 0.00 | 0.00 | -1.46 |
| 14+00 | 1400.00 | 50.00 | 0.00 | 0.00 | 15.19 | 0.00 | 0.00 | 0.00 | 16.37 | 0.00 | 0.00 | 19.46 | 0.00 | 0.00 | -19.46 |
| 14+50 | 1450.00 | 50.00 | 0.00 | 0.00 | 12.35 | 0.00 | 0.00 | 0.00 | 25.50 | 0.00 | 0.00 | 47.51 | 0.00 | 0.00 | -47.51 |
| 15+00 | 1500.00 | 50.00 | 0.05 | 0.00 | 1.49 | 0.00 | 0.05 | 0.00 | 12.81 | 0.00 | 0.05 | 61.61 | 0.00 | 0.00 | -61.56 |
| 15+47 BK | 1547.16 | 47.16 | 0.01 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 1.30 | 0.00 | 0.10 | 63.04 | 0.00 | 0.00 | -62.94 |
| | | Column totals | | | | | 0.10 | 0.00 | 57.31 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4711
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:32 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew86 PLOT SCALE : 1:1

**Division 3 EWT**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11+05 AH | 1105.02 | 0.00 | 6.39 | 0.00 | 10.62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11+50 | 1150.00 | 44.98 | 9.68 | 0.00 | 9.69 | 0.00 | 13.39 | 0.00 | 16.92 | 0.00 | 13.39 | 18.61 | 0.00 | 0.00 | -5.22 |
| 12+00 | 1200.00 | 50.00 | 13.84 | 0.00 | 7.10 | 0.00 | 21.78 | 0.00 | 15.55 | 0.00 | 35.16 | 35.71 | 0.00 | 0.00 | -0.55 |
| 12+50 | 1250.00 | 50.00 | 18.34 | 0.00 | 2.92 | 0.00 | 29.80 | 0.00 | 9.28 | 0.00 | 64.96 | 45.92 | 0.00 | 0.00 | 19.04 |
| 13+00 | 1300.00 | 50.00 | 24.77 | 0.00 | 1.94 | 0.00 | 39.92 | 0.00 | 4.50 | 0.00 | 104.88 | 50.87 | 0.00 | 0.00 | 54.01 |
| 13+50 | 1350.00 | 50.00 | 24.47 | 0.00 | 2.74 | 0.00 | 45.59 | 0.00 | 4.33 | 0.00 | 150.47 | 55.63 | 0.00 | 0.00 | 94.84 |
| 14+00 | 1400.00 | 50.00 | 24.59 | 0.00 | 3.31 | 0.00 | 45.43 | 0.00 | 5.60 | 0.00 | 195.89 | 61.79 | 0.00 | 0.00 | 134.10 |
| 14+15 BK | 1414.76 | 14.76 | 24.52 | 0.00 | 3.47 | 0.00 | 13.42 | 0.00 | 1.85 | 0.00 | 209.32 | 63.83 | 0.00 | 0.00 | 145.49 |
| | | | | | Column totals | | 209.32 | 0.00 | 58.03 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4712
September 14, 2015

**Division 3 WSB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11+00 AH | 1100.00 | 0.00 | 33.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11+50 | 1150.00 | 50.00 | 30.25 | 0.00 | 0.06 | 0.00 | 58.69 | 0.00 | 0.06 | 0.00 | 58.69 | 0.06 | 0.00 | 0.00 | 58.62 |
| 12+00 | 1200.00 | 50.00 | 19.05 | 0.00 | 1.29 | 0.00 | 45.65 | 0.00 | 1.25 | 0.00 | 104.33 | 1.44 | 0.00 | 0.00 | 102.90 |
| 12+50 | 1250.00 | 50.00 | 2.21 | 0.00 | 6.48 | 0.00 | 19.69 | 0.00 | 7.19 | 0.00 | 124.02 | 9.35 | 0.00 | 0.00 | 114.67 |
| 13+00 | 1300.00 | 50.00 | 0.00 | 0.00 | 32.09 | 0.00 | 2.05 | 0.00 | 35.71 | 0.00 | 126.06 | 48.63 | 0.00 | 0.00 | 77.43 |
| 13+50 | 1350.00 | 50.00 | 0.00 | 0.00 | 58.92 | 0.00 | 0.00 | 0.00 | 84.27 | 0.00 | 126.06 | 141.33 | 0.00 | 0.00 | -15.26 |
| 14+00 BK | 1400.00 | 50.00 | 0.00 | 0.00 | 98.36 | 0.00 | 0.00 | 0.00 | 145.63 | 0.00 | 126.06 | 301.52 | 0.00 | 0.00 | -175.46 |
| | | | | | | Column totals | 126.06 | 0.00 | 274.11 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4713
September 14, 2015

**Division 3 WSC**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11+00 AH | 1100.23 | 0.00 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11+50 | 1150.00 | 49.77 | 10.43 | 0.00 | 0.00 | 0.00 | 9.97 | 0.00 | 0.00 | 0.00 | 9.97 | 0.00 | 0.00 | 0.00 | 9.97 |
| 12+00 | 1200.00 | 50.00 | 18.93 | 0.00 | 0.00 | 0.00 | 27.19 | 0.00 | 0.00 | 0.00 | 37.16 | 0.00 | 0.00 | 0.00 | 37.16 |
| 12+50 | 1250.00 | 50.00 | 27.94 | 0.00 | 0.00 | 0.00 | 43.40 | 0.00 | 0.00 | 0.00 | 80.56 | 0.00 | 0.00 | 0.00 | 80.56 |
| 13+00 | 1300.00 | 50.00 | 26.71 | 0.00 | 0.00 | 0.00 | 50.60 | 0.00 | 0.00 | 0.00 | 131.16 | 0.00 | 0.00 | 0.00 | 131.16 |
| 13+50 | 1350.00 | 50.00 | 35.23 | 0.00 | 0.00 | 0.00 | 57.35 | 0.00 | 0.00 | 0.00 | 188.51 | 0.00 | 0.00 | 0.00 | 188.51 |
| 13+70 BK | 1369.50 | 19.50 | 34.36 | 0.00 | 0.00 | 0.00 | 25.13 | 0.00 | 0.00 | 0.00 | 213.64 | 0.00 | 0.00 | 0.00 | 213.64 |
| | | Column totals | | | | | 213.64 | 0.00 | 0.00 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4714
September 14, 2015


9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:32 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew89 PLOT SCALE : 1:1

**Division 3 WJA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12+98 AH | 1298.03 | 0.00 | 31.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13+00 | 1300.00 | 1.97 | 31.46 | 0.00 | 0.00 | 0.00 | 2.29 | 0.00 | 0.00 | 0.00 | 2.29 | 0.00 | 0.00 | 0.00 | 2.29 |
| 13+50 | 1350.00 | 50.00 | 35.36 | 0.00 | 0.00 | 0.00 | 61.87 | 0.00 | 0.00 | 0.00 | 64.16 | 0.00 | 0.00 | 0.00 | 64.16 |
| 14+00 | 1400.00 | 50.00 | 37.22 | 0.00 | 0.00 | 0.00 | 67.20 | 0.00 | 0.00 | 0.00 | 131.36 | 0.00 | 0.00 | 0.00 | 131.36 |
| 14+50 | 1450.00 | 50.00 | 38.99 | 0.00 | 0.01 | 0.00 | 70.56 | 0.00 | 0.01 | 0.00 | 201.93 | 0.01 | 0.00 | 0.00 | 201.92 |
| 15+00 | 1500.00 | 50.00 | 11.58 | 0.00 | 0.03 | 0.00 | 46.82 | 0.00 | 0.04 | 0.00 | 248.75 | 0.05 | 0.00 | 0.00 | 248.70 |
| 15+21 BK | 1521.08 | 21.08 | 0.39 | 0.00 | 0.35 | 0.00 | 4.67 | 0.00 | 0.15 | 0.00 | 253.42 | 0.21 | 0.00 | 0.00 | 253.21 |
| | | | | | Column totals | | 253.42 | 0.00 | 0.19 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4715
September 14, 2015

**Division 3 SBA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10+00 AH | 1000.00 | 0.00 | 1.08 | 0.00 | 25.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10+50 | 1050.00 | 50.00 | 0.00 | 0.00 | 76.44 | 0.00 | 1.00 | 0.00 | 94.54 | 0.00 | 1.00 | 103.99 | 0.00 | 0.00 | -102.99 |
| 11+00 | 1100.00 | 50.00 | 0.00 | 0.00 | 43.90 | 0.00 | 0.00 | 0.00 | 111.43 | 0.00 | 1.00 | 226.56 | 0.00 | 0.00 | -225.56 |
| 11+36 BK | 1136.40 | 36.40 | 0.00 | 0.00 | 14.71 | 0.00 | 0.00 | 0.00 | 39.51 | 0.00 | 1.00 | 270.02 | 0.00 | 0.00 | -269.02 |
| | | Column totals | | | | | 1.00 | 0.00 | 245.47 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4716
September 14, 2015


9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:32 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew91 PLOT SCALE : 1:1

**Division 4 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) | | | | Incremental Vol (CY) (Unadjusted) | | | | Cumulative Vol (CY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Expanded Fill | Expanded EBS Backfill | Reduced EBS In Fill | Mass Ordinate |
| | | | | | | | | | | | 1.0 | 1.1 | 1.3 | 0.8 | |
| | | | | | | | Note 1 | Note 2 | Note 3 | | | | Note 4 | Note 5 | Note 6 |
| 314+34 AH | 31434.00 | 0.00 | 130.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 314+50 | 31450.00 | 16.00 | 122.78 | 0.00 | 0.00 | 0.00 | 75.09 | 0.00 | 0.00 | 0.00 | 75.09 | 0.00 | 0.00 | 0.00 | 75.09 |
| 315+00 | 31500.00 | 50.00 | 98.54 | 0.00 | 0.00 | 0.00 | 204.93 | 0.00 | 0.00 | 0.00 | 280.02 | 0.00 | 0.00 | 0.00 | 280.02 |
| 315+50 | 31550.00 | 50.00 | 77.71 | 0.00 | 0.00 | 0.00 | 163.19 | 0.00 | 0.00 | 0.00 | 443.21 | 0.00 | 0.00 | 0.00 | 443.21 |
| 316+00 | 31600.00 | 50.00 | 62.06 | 0.00 | 0.00 | 0.00 | 129.42 | 0.00 | 0.00 | 0.00 | 572.63 | 0.00 | 0.00 | 0.00 | 572.63 |
| 316+50 | 31650.00 | 50.00 | 49.76 | 0.00 | 0.00 | 0.00 | 103.54 | 0.00 | 0.00 | 0.00 | 676.17 | 0.00 | 0.00 | 0.00 | 676.17 |
| 317+00 | 31700.00 | 50.00 | 41.42 | 0.00 | 0.00 | 0.00 | 84.43 | 0.00 | 0.00 | 0.00 | 760.59 | 0.00 | 0.00 | 0.00 | 760.59 |
| 317+50 | 31750.00 | 50.00 | 35.91 | 0.00 | 0.00 | 0.00 | 71.60 | 0.00 | 0.00 | 0.00 | 832.20 | 0.00 | 0.00 | 0.00 | 832.20 |
| 318+00 | 31800.00 | 50.00 | 27.24 | 0.00 | 0.00 | 0.00 | 58.47 | 0.00 | 0.00 | 0.00 | 890.67 | 0.00 | 0.00 | 0.00 | 890.67 |
| 318+50 | 31850.00 | 50.00 | 21.98 | 0.00 | 0.00 | 0.00 | 45.57 | 0.00 | 0.00 | 0.00 | 936.24 | 0.00 | 0.00 | 0.00 | 936.24 |
| 319+00 | 31900.00 | 50.00 | 17.78 | 0.00 | 0.00 | 0.00 | 36.81 | 0.00 | 0.00 | 0.00 | 973.06 | 0.00 | 0.00 | 0.00 | 973.06 |
| 319+50 | 31950.00 | 50.00 | 14.28 | 0.00 | 0.00 | 0.00 | 29.69 | 0.00 | 0.00 | 0.00 | 1002.74 | 0.00 | 0.00 | 0.00 | 1002.74 |
| 320+00 | 32000.00 | 50.00 | 9.08 | 0.00 | 0.00 | 0.00 | 21.63 | 0.00 | 0.00 | 0.00 | 1024.37 | 0.00 | 0.00 | 0.00 | 1024.37 |
| 320+00 | 32000.00 | 0.00 | 34.48 | 0.00 | 2.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1024.37 | 0.00 | 0.00 | 0.00 | 1024.37 |
| 320+50 | 32050.00 | 50.00 | 39.72 | 0.00 | 1.79 | 0.00 | 68.70 | 0.00 | 3.67 | 0.00 | 1093.07 | 4.03 | 0.00 | 0.00 | 1089.04 |
| 321+00 | 32100.00 | 50.00 | 52.05 | 0.00 | 0.98 | 0.00 | 84.97 | 0.00 | 2.56 | 0.00 | 1178.05 | 6.85 | 0.00 | 0.00 | 1171.19 |
| 321+50 | 32150.00 | 50.00 | 80.94 | 0.00 | 0.00 | 0.00 | 123.14 | 0.00 | 0.91 | 0.00 | 1301.19 | 7.85 | 0.00 | 0.00 | 1293.33 |
| 322+00 | 32200.00 | 50.00 | 123.13 | 0.00 | 0.00 | 0.00 | 188.95 | 0.00 | 0.00 | 0.00 | 1490.14 | 7.85 | 0.00 | 0.00 | 1482.29 |
| 322+50 | 32250.00 | 50.00 | 141.83 | 0.00 | 0.00 | 0.00 | 245.33 | 0.00 | 0.00 | 0.00 | 1735.47 | 7.85 | 0.00 | 0.00 | 1727.62 |
| 323+00 | 32300.00 | 50.00 | 175.05 | 0.00 | 0.00 | 0.00 | 293.41 | 0.00 | 0.00 | 0.00 | 2028.88 | 7.85 | 0.00 | 0.00 | 2021.03 |
| 323+50 | 32350.00 | 50.00 | 188.21 | 0.00 | 0.00 | 0.00 | 336.35 | 0.00 | 0.00 | 0.00 | 2365.23 | 7.85 | 0.00 | 0.00 | 2357.38 |
| 324+00 | 32400.00 | 50.00 | 200.70 | 0.00 | 0.00 | 0.00 | 360.10 | 0.00 | 0.00 | 0.00 | 2725.33 | 7.85 | 0.00 | 0.00 | 2717.48 |
| 324+50 | 32450.00 | 50.00 | 219.45 | 0.00 | 0.00 | 0.00 | 389.03 | 0.00 | 0.00 | 0.00 | 3114.36 | 7.85 | 0.00 | 0.00 | 3106.51 |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4717
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 4 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 325+00 | 32500.00 | 50.00 | 264.61 | 0.00 | 448.54 | 0.00 | 448.20 | 0.00 | 415.31 | 0.00 | 3562.57 | 464.70 | 0.00 | 0.00 | 3097.87 |
| 325+50 | 32550.00 | 50.00 | 331.47 | 0.00 | 354.35 | 0.00 | 551.93 | 0.00 | 743.42 | 0.00 | 4114.49 | 1282.46 | 0.00 | 0.00 | 2832.03 |
| 326+00 | 32600.00 | 50.00 | 387.22 | 0.00 | 289.25 | 0.00 | 665.45 | 0.00 | 595.93 | 0.00 | 4779.95 | 1937.98 | 0.00 | 0.00 | 2841.97 |
| 326+50 | 32650.00 | 50.00 | 441.70 | 0.00 | 227.62 | 0.00 | 767.52 | 0.00 | 478.58 | 0.00 | 5547.46 | 2464.42 | 0.00 | 0.00 | 3083.05 |
| 327+00 | 32700.00 | 50.00 | 504.20 | 0.00 | 180.06 | 0.00 | 875.83 | 0.00 | 377.48 | 0.00 | 6423.30 | 2879.65 | 0.00 | 0.00 | 3543.65 |
| 327+50 | 32750.00 | 50.00 | 606.77 | 0.00 | 110.32 | 0.00 | 1028.68 | 0.00 | 268.87 | 0.00 | 7451.97 | 3175.40 | 0.00 | 0.00 | 4276.57 |
| 328+00 | 32800.00 | 50.00 | 706.71 | 0.00 | 0.16 | 0.00 | 1216.19 | 0.00 | 102.30 | 0.00 | 8668.16 | 3287.93 | 0.00 | 0.00 | 5380.23 |
| 328+50 | 32850.00 | 50.00 | 760.40 | 0.00 | 0.00 | 0.00 | 1358.44 | 0.00 | 0.15 | 0.00 | 10026.59 | 3288.09 | 0.00 | 0.00 | 6738.50 |
| 329+00 | 32900.00 | 50.00 | 774.15 | 0.00 | 0.00 | 0.00 | 1420.88 | 0.00 | 0.00 | 0.00 | 11447.47 | 3288.09 | 0.00 | 0.00 | 8159.38 |
| 329+50 | 32950.00 | 50.00 | 746.58 | 0.00 | 0.00 | 0.00 | 1408.08 | 0.00 | 0.00 | 0.00 | 12855.56 | 3288.09 | 0.00 | 0.00 | 9567.46 |
| 330+00 | 33000.00 | 50.00 | 700.97 | 0.00 | 0.00 | 0.00 | 1340.32 | 0.00 | 0.00 | 0.00 | 14195.88 | 3288.09 | 0.00 | 0.00 | 10907.79 |
| 330+00 | 33000.00 | 0.00 | 576.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 14195.88 | 3288.09 | 0.00 | 0.00 | 10907.79 |
| 330+50 | 33050.00 | 50.00 | 516.43 | 0.00 | 0.00 | 0.00 | 1012.26 | 0.00 | 0.00 | 0.00 | 15208.14 | 3288.09 | 0.00 | 0.00 | 11920.05 |
| 331+00 | 33100.00 | 50.00 | 462.69 | 0.00 | 0.00 | 0.00 | 906.59 | 0.00 | 0.00 | 0.00 | 16114.73 | 3288.09 | 0.00 | 0.00 | 12826.64 |
| 331+50 | 33150.00 | 50.00 | 399.31 | 0.00 | 0.00 | 0.00 | 798.15 | 0.00 | 0.00 | 0.00 | 16912.88 | 3288.09 | 0.00 | 0.00 | 13624.79 |
| 332+00 | 33200.00 | 50.00 | 333.59 | 0.00 | 0.00 | 0.00 | 678.61 | 0.00 | 0.00 | 0.00 | 17591.49 | 3288.09 | 0.00 | 0.00 | 14303.40 |
| 332+50 | 33250.00 | 50.00 | 276.11 | 0.00 | 0.00 | 0.00 | 564.54 | 0.00 | 0.00 | 0.00 | 18156.03 | 3288.09 | 0.00 | 0.00 | 14867.94 |
| 332+76 | 33275.52 | 25.52 | 255.69 | 0.00 | 0.00 | 0.00 | 251.32 | 0.00 | 0.00 | 0.00 | 18407.35 | 3288.09 | 0.00 | 0.00 | 15119.26 |
| 332+76 | 33275.52 | 0.00 | 107.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 18407.35 | 3288.09 | 0.00 | 0.00 | 15119.26 |
| 333+00 | 33300.00 | 24.48 | 103.11 | 0.00 | 0.00 | 0.00 | 95.68 | 0.00 | 0.00 | 0.00 | 18503.03 | 3288.09 | 0.00 | 0.00 | 15214.94 |
| 333+50 | 33350.00 | 50.00 | 91.92 | 0.00 | 0.00 | 0.00 | 180.58 | 0.00 | 0.00 | 0.00 | 18683.62 | 3288.09 | 0.00 | 0.00 | 15395.52 |
| 334+00 BK | 33400.00 | 50.00 | 107.92 | 0.00 | 0.00 | 0.00 | 185.04 | 0.00 | 0.00 | 0.00 | 18868.65 | 3288.09 | 0.00 | 0.00 | 15580.56 |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4718
September 14, 2015

(CONTINUED ON NEXT SHEET)



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:32 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew93 PLOT SCALE : 1:1

(CONTINUED)

**Division 4 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 335+31 AH | 33530.81 | 0.00 | 0.00 | 0.00 | 1053.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 335+50 | 33550.00 | 19.19 | 0.00 | 0.00 | 1593.14 | 0.00 | 0.00 | 0.00 | 940.69 | 0.00 | 0.00 | 1034.76 | 0.00 | 0.00 | -1034.76 |
| 336+00 | 33600.00 | 50.00 | 75.03 | 0.00 | 1632.99 | 0.00 | 69.47 | 0.00 | 2987.16 | 0.00 | 69.47 | 4320.63 | 0.00 | 0.00 | -4251.16 |
| 336+50 | 33650.00 | 50.00 | 99.87 | 0.00 | 1454.94 | 0.00 | 161.94 | 0.00 | 2859.19 | 0.00 | 231.42 | 7465.75 | 0.00 | 0.00 | -7234.33 |
| 337+00 | 33700.00 | 50.00 | 79.55 | 0.00 | 1344.06 | 0.00 | 166.13 | 0.00 | 2591.67 | 0.00 | 397.55 | 10316.58 | 0.00 | 0.00 | -9919.03 |
| 337+50 | 33750.00 | 50.00 | 94.45 | 0.00 | 1220.35 | 0.00 | 161.11 | 0.00 | 2374.45 | 0.00 | 558.66 | 12928.48 | 0.00 | 0.00 | -12369.82 |
| 338+00 | 33800.00 | 50.00 | 64.73 | 0.00 | 1257.49 | 0.00 | 147.39 | 0.00 | 2294.30 | 0.00 | 706.05 | 15452.20 | 0.00 | 0.00 | -14746.16 |
| 338+50 | 33850.00 | 50.00 | 51.37 | 0.00 | 1453.44 | 0.00 | 107.50 | 0.00 | 2510.12 | 0.00 | 813.55 | 18213.34 | 0.00 | 0.00 | -17399.79 |
| 339+00 | 33900.00 | 50.00 | 39.15 | 0.00 | 1583.63 | 0.00 | 83.81 | 0.00 | 2812.10 | 0.00 | 897.36 | 21306.65 | 0.00 | 0.00 | -20409.29 |
| 339+50 | 33950.00 | 50.00 | 33.25 | 0.00 | 1738.57 | 0.00 | 67.04 | 0.00 | 3076.11 | 0.00 | 964.40 | 24690.37 | 0.00 | 0.00 | -23725.97 |
| 340+00 | 34000.00 | 50.00 | 40.07 | 0.00 | 1572.89 | 0.00 | 67.89 | 0.00 | 3066.17 | 0.00 | 1032.29 | 28063.15 | 0.00 | 0.00 | -27030.87 |
| 340+50 | 34050.00 | 50.00 | 28.03 | 0.00 | 1582.62 | 0.00 | 63.06 | 0.00 | 2921.77 | 0.00 | 1095.34 | 31277.10 | 0.00 | 0.00 | -30181.76 |
| 341+00 | 34100.00 | 50.00 | 27.59 | 0.00 | 1488.12 | 0.00 | 51.50 | 0.00 | 2843.28 | 0.00 | 1146.84 | 34404.71 | 0.00 | 0.00 | -33257.86 |
| 341+50 | 34150.00 | 50.00 | 28.86 | 0.00 | 1285.90 | 0.00 | 52.27 | 0.00 | 2568.54 | 0.00 | 1199.11 | 37230.10 | 0.00 | 0.00 | -36030.99 |
| 342+00 | 34200.00 | 50.00 | 22.82 | 0.00 | 1300.70 | 0.00 | 47.85 | 0.00 | 2395.00 | 0.00 | 1246.96 | 39864.60 | 0.00 | 0.00 | -38617.63 |
| 342+50 | 34250.00 | 50.00 | 18.62 | 0.00 | 1446.23 | 0.00 | 38.37 | 0.00 | 2543.45 | 0.00 | 1285.33 | 42662.40 | 0.00 | 0.00 | -41377.06 |
| 343+00 | 34300.00 | 50.00 | 18.83 | 0.00 | 1161.70 | 0.00 | 34.68 | 0.00 | 2414.75 | 0.00 | 1320.01 | 45318.62 | 0.00 | 0.00 | -43998.61 |
| 343+41 | 34340.54 | 40.54 | 17.42 | 0.00 | 958.10 | 0.00 | 27.21 | 0.00 | 1591.42 | 0.00 | 1347.22 | 47069.18 | 0.00 | 0.00 | -45721.96 |
| 343+41 | 34340.54 | 0.00 | 123.95 | 0.00 | 958.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1347.22 | 47069.18 | 0.00 | 0.00 | -45721.96 |
| 343+50 | 34350.00 | 9.46 | 125.23 | 0.00 | 903.54 | 0.00 | 43.65 | 0.00 | 326.11 | 0.00 | 1390.88 | 47427.91 | 0.00 | 0.00 | -46037.03 |
| 344+00 | 34400.00 | 50.00 | 133.36 | 0.00 | 656.90 | 0.00 | 239.44 | 0.00 | 1444.85 | 0.00 | 1630.31 | 49017.25 | 0.00 | 0.00 | -47386.93 |
| 344+50 | 34450.00 | 50.00 | 135.81 | 0.00 | 506.50 | 0.00 | 249.23 | 0.00 | 1077.22 | 0.00 | 1879.54 | 50202.19 | 0.00 | 0.00 | -48322.65 |
| 345+00 | 34500.00 | 50.00 | 130.07 | 0.00 | 397.90 | 0.00 | 246.19 | 0.00 | 837.41 | 0.00 | 2125.73 | 51123.34 | 0.00 | 0.00 | -48997.61 |
| 345+50 | 34550.00 | 50.00 | 118.52 | 0.00 | 316.78 | 0.00 | 230.18 | 0.00 | 661.74 | 0.00 | 2355.90 | 51851.25 | 0.00 | 0.00 | -49495.35 |
| 346+00 | 34600.00 | 50.00 | 99.96 | 0.00 | 297.05 | 0.00 | 202.30 | 0.00 | 568.36 | 0.00 | 2558.20 | 52476.45 | 0.00 | 0.00 | -49918.25 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4719
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 4 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 346+00 | 34600.00 | 0.00 | 144.62 | 0.00 | 297.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2558.20 | 52476.45 | 0.00 | 0.00 | -49918.25 |
| 346+34 | 34634.21 | 34.21 | 133.24 | 0.00 | 254.38 | 0.00 | 176.03 | 0.00 | 349.32 | 0.00 | 2734.23 | 52860.70 | 0.00 | 0.00 | -50126.47 |
| 346+34 | 34634.21 | 0.00 | 38.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2734.23 | 52860.70 | 0.00 | 0.00 | -50126.47 |
| 346+50 | 34650.00 | 15.79 | 35.13 | 0.00 | 0.00 | 0.00 | 21.44 | 0.00 | 0.00 | 0.00 | 2755.67 | 52860.70 | 0.00 | 0.00 | -50105.04 |
| 347+00 | 34700.00 | 50.00 | 28.06 | 0.00 | 0.00 | 0.00 | 58.51 | 0.00 | 0.00 | 0.00 | 2814.18 | 52860.70 | 0.00 | 0.00 | -50046.53 |
| 347+00 | 34700.00 | 0.00 | 65.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2814.18 | 52860.70 | 0.00 | 0.00 | -50046.53 |
| 347+50 | 34750.00 | 50.00 | 53.09 | 0.00 | 0.00 | 0.00 | 109.65 | 0.00 | 0.00 | 0.00 | 2923.82 | 52860.70 | 0.00 | 0.00 | -49936.88 |
| 348+00 | 34800.00 | 50.00 | 46.98 | 0.00 | 0.00 | 0.00 | 92.66 | 0.00 | 0.00 | 0.00 | 3016.48 | 52860.70 | 0.00 | 0.00 | -49844.22 |
| 348+50 | 34850.00 | 50.00 | 43.38 | 0.00 | 0.00 | 0.00 | 83.67 | 0.00 | 0.00 | 0.00 | 3100.15 | 52860.70 | 0.00 | 0.00 | -49760.56 |
| 349+00 | 34900.00 | 50.00 | 40.02 | 0.00 | 0.00 | 0.00 | 77.22 | 0.00 | 0.00 | 0.00 | 3177.37 | 52860.70 | 0.00 | 0.00 | -49683.33 |
| 349+50 | 34950.00 | 50.00 | 33.39 | 0.00 | 0.00 | 0.00 | 67.97 | 0.00 | 0.00 | 0.00 | 3245.34 | 52860.70 | 0.00 | 0.00 | -49615.36 |
| 349+80 | 34980.01 | 30.01 | 28.98 | 0.00 | 0.00 | 0.00 | 34.66 | 0.00 | 0.00 | 0.00 | 3280.00 | 52860.70 | 0.00 | 0.00 | -49580.70 |
| 349+80 | 34980.01 | 0.00 | 60.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3280.00 | 52860.70 | 0.00 | 0.00 | -49580.70 |
| 350+00 | 35000.00 | 19.99 | 48.52 | 0.00 | 0.00 | 0.00 | 40.28 | 0.00 | 0.00 | 0.00 | 3320.28 | 52860.70 | 0.00 | 0.00 | -49540.42 |
| 350+50 | 35050.00 | 50.00 | 36.45 | 0.00 | 5.06 | 0.00 | 78.68 | 0.00 | 4.69 | 0.00 | 3398.96 | 52865.86 | 0.00 | 0.00 | -49466.90 |
| 351+00 | 35100.00 | 50.00 | 35.38 | 0.00 | 9.57 | 0.00 | 66.51 | 0.00 | 13.55 | 0.00 | 3465.46 | 52880.76 | 0.00 | 0.00 | -49415.29 |
| 351+50 | 35150.00 | 50.00 | 44.08 | 0.00 | 15.60 | 0.00 | 73.57 | 0.00 | 23.31 | 0.00 | 3539.04 | 52906.40 | 0.00 | 0.00 | -49367.36 |
| 352+00 | 35200.00 | 50.00 | 64.87 | 0.00 | 13.38 | 0.00 | 100.88 | 0.00 | 26.83 | 0.00 | 3639.92 | 52935.91 | 0.00 | 0.00 | -49295.99 |
| 352+50 | 35250.00 | 50.00 | 84.06 | 0.00 | 14.49 | 0.00 | 137.90 | 0.00 | 25.81 | 0.00 | 3777.82 | 52964.30 | 0.00 | 0.00 | -49186.48 |
| 353+00 | 35300.00 | 50.00 | 102.00 | 0.00 | 11.34 | 0.00 | 172.28 | 0.00 | 23.92 | 0.00 | 3950.09 | 52990.61 | 0.00 | 0.00 | -49040.51 |
| 353+31 BK | 35331.33 | 31.33 | 112.38 | 0.00 | 1.57 | 0.00 | 124.38 | 0.00 | 7.49 | 0.00 | 4074.47 | 52998.85 | 0.00 | 0.00 | -48924.37 |
| | | | | | Column totals | | 22943.13 | 0.00 | 51169.94 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4720
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:32 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew95 PLOT SCALE : 1:1

**Division 4 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 162+00 AH | 16200.00 | 0.00 | 118.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 162+50 | 16250.00 | 50.00 | 105.52 | 0.00 | 0.00 | 0.00 | 207.20 | 0.00 | 0.00 | 0.00 | 207.20 | 0.00 | 0.00 | 0.00 | 207.20 |
| 163+00 | 16300.00 | 50.00 | 106.18 | 0.00 | 0.00 | 0.00 | 196.02 | 0.00 | 0.00 | 0.00 | 403.22 | 0.00 | 0.00 | 0.00 | 403.22 |
| 163+50 | 16350.00 | 50.00 | 124.30 | 0.00 | 0.00 | 0.00 | 213.41 | 0.00 | 0.00 | 0.00 | 616.63 | 0.00 | 0.00 | 0.00 | 616.63 |
| 164+00 | 16400.00 | 50.00 | 145.75 | 0.00 | 0.00 | 0.00 | 250.05 | 0.00 | 0.00 | 0.00 | 866.68 | 0.00 | 0.00 | 0.00 | 866.68 |
| 164+50 | 16450.00 | 50.00 | 165.91 | 0.00 | 0.00 | 0.00 | 288.57 | 0.00 | 0.00 | 0.00 | 1155.25 | 0.00 | 0.00 | 0.00 | 1155.25 |
| 165+00 | 16500.00 | 50.00 | 167.15 | 0.00 | 0.00 | 0.00 | 308.39 | 0.00 | 0.00 | 0.00 | 1463.64 | 0.00 | 0.00 | 0.00 | 1463.64 |
| 165+50 | 16550.00 | 50.00 | 161.15 | 0.00 | 0.00 | 0.00 | 303.98 | 0.00 | 0.00 | 0.00 | 1767.62 | 0.00 | 0.00 | 0.00 | 1767.62 |
| 166+00 | 16600.00 | 50.00 | 155.61 | 0.00 | 0.00 | 0.00 | 293.30 | 0.00 | 0.00 | 0.00 | 2060.92 | 0.00 | 0.00 | 0.00 | 2060.92 |
| 166+50 | 16650.00 | 50.00 | 151.71 | 0.00 | 0.00 | 0.00 | 284.56 | 0.00 | 0.00 | 0.00 | 2345.47 | 0.00 | 0.00 | 0.00 | 2345.47 |
| 167+00 | 16700.00 | 50.00 | 149.95 | 0.00 | 0.00 | 0.00 | 279.31 | 0.00 | 0.00 | 0.00 | 2624.79 | 0.00 | 0.00 | 0.00 | 2624.79 |
| 167+50 | 16750.00 | 50.00 | 150.39 | 0.00 | 0.00 | 0.00 | 278.09 | 0.00 | 0.00 | 0.00 | 2902.88 | 0.00 | 0.00 | 0.00 | 2902.88 |
| 168+00 | 16800.00 | 50.00 | 152.24 | 0.00 | 0.00 | 0.00 | 280.21 | 0.00 | 0.00 | 0.00 | 3183.09 | 0.00 | 0.00 | 0.00 | 3183.09 |
| 168+50 | 16850.00 | 50.00 | 154.85 | 0.00 | 0.00 | 0.00 | 284.34 | 0.00 | 0.00 | 0.00 | 3467.44 | 0.00 | 0.00 | 0.00 | 3467.44 |
| 169+00 | 16900.00 | 50.00 | 159.93 | 0.00 | 0.00 | 0.00 | 291.46 | 0.00 | 0.00 | 0.00 | 3758.90 | 0.00 | 0.00 | 0.00 | 3758.90 |
| 169+50 | 16950.00 | 50.00 | 154.50 | 0.00 | 0.00 | 0.00 | 291.14 | 0.00 | 0.00 | 0.00 | 4050.04 | 0.00 | 0.00 | 0.00 | 4050.04 |
| 170+00 | 17000.00 | 50.00 | 154.91 | 0.00 | 0.00 | 0.00 | 286.49 | 0.00 | 0.00 | 0.00 | 4336.53 | 0.00 | 0.00 | 0.00 | 4336.53 |
| 170+50 | 17050.00 | 50.00 | 155.76 | 0.00 | 0.00 | 0.00 | 287.66 | 0.00 | 0.00 | 0.00 | 4624.19 | 0.00 | 0.00 | 0.00 | 4624.19 |
| 171+00 | 17100.00 | 50.00 | 158.46 | 0.00 | 0.00 | 0.00 | 290.94 | 0.00 | 0.00 | 0.00 | 4915.13 | 0.00 | 0.00 | 0.00 | 4915.13 |
| 171+50 | 17150.00 | 50.00 | 153.49 | 0.00 | 0.00 | 0.00 | 288.84 | 0.00 | 0.00 | 0.00 | 5203.97 | 0.00 | 0.00 | 0.00 | 5203.97 |
| 172+00 | 17200.00 | 50.00 | 159.48 | 0.00 | 0.00 | 0.00 | 289.79 | 0.00 | 0.00 | 0.00 | 5493.76 | 0.00 | 0.00 | 0.00 | 5493.76 |
| 172+50 | 17250.00 | 50.00 | 152.89 | 0.00 | 0.00 | 0.00 | 289.23 | 0.00 | 0.00 | 0.00 | 5782.99 | 0.00 | 0.00 | 0.00 | 5782.99 |
| 173+00 | 17300.00 | 50.00 | 149.01 | 0.00 | 0.00 | 0.00 | 279.54 | 0.00 | 0.00 | 0.00 | 6062.53 | 0.00 | 0.00 | 0.00 | 6062.53 |
| 173+50 | 17350.00 | 50.00 | 159.05 | 0.00 | 0.00 | 0.00 | 285.24 | 0.00 | 0.00 | 0.00 | 6347.77 | 0.00 | 0.00 | 0.00 | 6347.77 |
| 174+00 | 17400.00 | 50.00 | 173.65 | 0.00 | 0.00 | 0.00 | 308.06 | 0.00 | 0.00 | 0.00 | 6655.82 | 0.00 | 0.00 | 0.00 | 6655.82 |
| 174+50 | 17450.00 | 50.00 | 189.01 | 0.00 | 0.00 | 0.00 | 335.80 | 0.00 | 0.00 | 0.00 | 6991.62 | 0.00 | 0.00 | 0.00 | 6991.62 |
| 175+00 | 17500.00 | 50.00 | 173.88 | 0.00 | 0.00 | 0.00 | 336.01 | 0.00 | 0.00 | 0.00 | 7327.63 | 0.00 | 0.00 | 0.00 | 7327.63 |
| 175+40 | 17539.94 | 39.94 | 245.30 | 0.00 | 0.00 | 0.00 | 310.04 | 0.00 | 0.00 | 0.00 | 7637.67 | 0.00 | 0.00 | 0.00 | 7637.67 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4721
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 4 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 175+40 | 17539.94 | 0.00 | 201.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7637.67 | 0.00 | 0.00 | 0.00 | 7637.67 |
| 175+50 | 17550.00 | 10.06 | 208.74 | 0.00 | 0.00 | 0.00 | 76.40 | 0.00 | 0.00 | 0.00 | 7714.06 | 0.00 | 0.00 | 0.00 | 7714.06 |
| 176+00 | 17600.00 | 50.00 | 243.33 | 0.00 | 0.00 | 0.00 | 418.58 | 0.00 | 0.00 | 0.00 | 8132.65 | 0.00 | 0.00 | 0.00 | 8132.65 |
| 176+50 | 17650.00 | 50.00 | 272.13 | 0.00 | 0.00 | 0.00 | 477.28 | 0.00 | 0.00 | 0.00 | 8609.93 | 0.00 | 0.00 | 0.00 | 8609.93 |
| 177+00 | 17700.00 | 50.00 | 290.42 | 0.00 | 0.00 | 0.00 | 520.88 | 0.00 | 0.00 | 0.00 | 9130.80 | 0.00 | 0.00 | 0.00 | 9130.80 |
| 177+50 | 17750.00 | 50.00 | 292.92 | 0.00 | 0.00 | 0.00 | 540.13 | 0.00 | 0.00 | 0.00 | 9670.93 | 0.00 | 0.00 | 0.00 | 9670.93 |
| 178+00 | 17800.00 | 50.00 | 282.98 | 0.00 | 0.00 | 0.00 | 533.24 | 0.00 | 0.00 | 0.00 | 10204.18 | 0.00 | 0.00 | 0.00 | 10204.18 |
| 178+50 | 17850.00 | 50.00 | 244.61 | 0.00 | 3.73 | 0.00 | 488.51 | 0.00 | 3.45 | 0.00 | 10692.68 | 3.80 | 0.00 | 0.00 | 10688.89 |
| 178+50 | 17850.00 | 0.00 | 245.29 | 0.00 | 16.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10692.68 | 3.80 | 0.00 | 0.00 | 10688.89 |
| 179+00 | 17900.00 | 50.00 | 206.89 | 0.00 | 49.20 | 0.00 | 418.69 | 0.00 | 60.69 | 0.00 | 11111.37 | 70.56 | 0.00 | 0.00 | 11040.81 |
| 179+50 | 17950.00 | 50.00 | 149.82 | 0.00 | 60.32 | 0.00 | 330.29 | 0.00 | 101.41 | 0.00 | 11441.66 | 182.11 | 0.00 | 0.00 | 11259.55 |
| 180+00 BK | 18000.00 | 50.00 | 93.85 | 0.00 | 72.43 | 0.00 | 225.62 | 0.00 | 122.92 | 0.00 | 11667.28 | 317.32 | 0.00 | 0.00 | 11349.96 |
| 182+00 AH | 18200.00 | 0.00 | 90.31 | 0.00 | 64.69 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 182+50 | 18250.00 | 50.00 | 93.49 | 0.00 | 62.84 | 0.00 | 170.19 | 0.00 | 118.08 | 0.00 | 170.19 | 129.89 | 0.00 | 0.00 | 40.29 |
| 183+00 | 18300.00 | 50.00 | 116.95 | 0.00 | 56.17 | 0.00 | 194.85 | 0.00 | 110.19 | 0.00 | 365.04 | 251.11 | 0.00 | 0.00 | 113.93 |
| 183+50 | 18350.00 | 50.00 | 126.94 | 0.00 | 38.40 | 0.00 | 225.82 | 0.00 | 87.56 | 0.00 | 590.86 | 347.43 | 0.00 | 0.00 | 243.43 |
| 184+00 BK | 18400.00 | 50.00 | 140.54 | 0.00 | 23.28 | 0.00 | 247.67 | 0.00 | 57.11 | 0.00 | 838.53 | 410.25 | 0.00 | 0.00 | 428.28 |
| | | | | | | Column totals | 12505.80 | 0.00 | 661.43 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4722
September 14, 2015


9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:33 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew97 PLOT SCALE : 1:1

**Division 4 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 192+00 AH | 19200.00 | 0.00 | 1321.76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 192+50 | 19250.00 | 50.00 | 1941.65 | 0.00 | 0.00 | 0.00 | 3021.68 | 0.00 | 0.00 | 0.00 | 3021.68 | 0.00 | 0.00 | 0.00 | 3021.68 |
| 193+00 | 19300.00 | 50.00 | 2289.01 | 0.00 | 0.00 | 0.00 | 3917.28 | 0.00 | 0.00 | 0.00 | 6938.95 | 0.00 | 0.00 | 0.00 | 6938.95 |
| 193+50 | 19350.00 | 50.00 | 3074.86 | 0.00 | 0.00 | 0.00 | 4966.55 | 0.00 | 0.00 | 0.00 | 11905.50 | 0.00 | 0.00 | 0.00 | 11905.50 |
| 194+00 | 19400.00 | 50.00 | 4037.35 | 0.00 | 0.00 | 0.00 | 6585.38 | 0.00 | 0.00 | 0.00 | 18490.88 | 0.00 | 0.00 | 0.00 | 18490.88 |
| 194+50 | 19450.00 | 50.00 | 4895.16 | 0.00 | 0.00 | 0.00 | 8270.84 | 0.00 | 0.00 | 0.00 | 26761.72 | 0.00 | 0.00 | 0.00 | 26761.72 |
| 195+00 | 19500.00 | 50.00 | 5848.18 | 0.00 | 0.00 | 0.00 | 9947.54 | 0.00 | 0.00 | 0.00 | 36709.26 | 0.00 | 0.00 | 0.00 | 36709.26 |
| 195+50 | 19550.00 | 50.00 | 6782.78 | 0.00 | 0.00 | 0.00 | 11695.33 | 0.00 | 0.00 | 0.00 | 48404.59 | 0.00 | 0.00 | 0.00 | 48404.59 |
| 196+00 | 19600.00 | 50.00 | 7024.90 | 0.00 | 0.00 | 0.00 | 12784.89 | 0.00 | 0.00 | 0.00 | 61189.48 | 0.00 | 0.00 | 0.00 | 61189.48 |
| 196+19 BK | 19619.47 | 19.47 | 6824.30 | 0.00 | 0.00 | 0.00 | 4993.41 | 0.00 | 0.00 | 0.00 | 66182.89 | 0.00 | 0.00 | 0.00 | 66182.89 |
| | | | | | | Column totals | 66182.89 | 0.00 | 0.00 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4723
September 14, 2015

9

9

PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4723 | E

**Division 4 IH 94 WB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 193+00 AH | 19300 | 0.00 | 947.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 193+50 | 19350 | 50.00 | 1235.96 | 0.00 | 0.00 | 0.00 | 2021.44 | 0.00 | 0.00 | 0.00 | 2021.44 | 0.00 | 0.00 | 0.00 | 2021.44 |
| 194+00 | 19400 | 50.00 | 2525.12 | 0.00 | 0.00 | 0.00 | 3482.48 | 0.00 | 0.00 | 0.00 | 5503.93 | 0.00 | 0.00 | 0.00 | 5503.93 |
| 194+50 | 19450 | 50.00 | 3227.50 | 0.00 | 0.00 | 0.00 | 5326.50 | 0.00 | 0.00 | 0.00 | 10830.43 | 0.00 | 0.00 | 0.00 | 10830.43 |
| 195+00 | 19500 | 50.00 | 3567.54 | 0.00 | 0.00 | 0.00 | 6291.70 | 0.00 | 0.00 | 0.00 | 17122.13 | 0.00 | 0.00 | 0.00 | 17122.13 |
| 195+50 | 19550 | 50.00 | 3961.57 | 0.00 | 0.00 | 0.00 | 6971.40 | 0.00 | 0.00 | 0.00 | 24093.53 | 0.00 | 0.00 | 0.00 | 24093.53 |
| 196+00 | 19600 | 50.00 | 4755.41 | 0.00 | 0.00 | 0.00 | 8071.28 | 0.00 | 0.00 | 0.00 | 32164.81 | 0.00 | 0.00 | 0.00 | 32164.81 |
| 196+50 | 19650 | 50.00 | 5181.40 | 0.00 | 0.00 | 0.00 | 9200.75 | 0.00 | 0.00 | 0.00 | 41365.56 | 0.00 | 0.00 | 0.00 | 41365.56 |
| 197+00 | 19700 | 50.00 | 4264.59 | 0.00 | 0.00 | 0.00 | 8746.29 | 0.00 | 0.00 | 0.00 | 50111.84 | 0.00 | 0.00 | 0.00 | 50111.84 |
| 197+50 | 19750 | 50.00 | 2625.04 | 0.00 | 310.26 | 0.00 | 6379.29 | 0.00 | 287.28 | 0.00 | 56491.13 | 316.01 | 0.00 | 0.00 | 56175.12 |
| 198+00 | 19800 | 50.00 | 1931.16 | 0.00 | 1089.66 | 0.00 | 4218.70 | 0.00 | 1296.22 | 0.00 | 60709.83 | 1741.85 | 0.00 | 0.00 | 58967.98 |
| 198+50 | 19850 | 50.00 | 2559.10 | 0.00 | 1193.64 | 0.00 | 4157.65 | 0.00 | 2114.17 | 0.00 | 64867.48 | 4067.43 | 0.00 | 0.00 | 60800.05 |
| 199+00 BK | 19900 | 50.00 | 2337.30 | 0.00 | 139.73 | 0.00 | 4533.70 | 0.00 | 1234.60 | 0.00 | 69401.19 | 5425.50 | 0.00 | 0.00 | 63975.69 |
| | | | | | Column totals | | 69401.19 | 0.00 | 4932.27 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4724
September 14, 2015


9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:33 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew99 PLOT SCALE : 1:1

**Division 4 RAMP SW**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 598+95 AH | 59895.10 | 0.00 | 84.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 599+00 | 59900.00 | 4.90 | 75.57 | 0.00 | 0.00 | 0.00 | 14.52 | 0.00 | 0.00 | 0.00 | 14.52 | 0.00 | 0.00 | 0.00 | 14.52 |
| 599+33 | 59932.50 | 32.50 | 86.27 | 0.00 | 0.00 | 0.00 | 97.40 | 0.00 | 0.00 | 0.00 | 111.93 | 0.00 | 0.00 | 0.00 | 111.93 |
| 599+50 | 59950.00 | 17.50 | 93.52 | 0.00 | 0.00 | 0.00 | 55.17 | 0.00 | 0.00 | 0.00 | 69.69 | 0.00 | 0.00 | 0.00 | 69.69 |
| 600+00 | 60000.00 | 50.00 | 112.85 | 0.00 | 0.00 | 0.00 | 191.08 | 0.00 | 0.00 | 0.00 | 260.78 | 0.00 | 0.00 | 0.00 | 260.78 |
| 600+50 | 60050.00 | 50.00 | 97.99 | 0.00 | 0.00 | 0.00 | 195.22 | 0.00 | 0.00 | 0.00 | 456.00 | 0.00 | 0.00 | 0.00 | 456.00 |
| 601+00 | 60100.00 | 50.00 | 66.42 | 0.00 | 0.77 | 0.00 | 152.23 | 0.00 | 0.71 | 0.00 | 608.23 | 0.78 | 0.00 | 0.00 | 607.45 |
| 601+50 | 60150.00 | 50.00 | 39.45 | 0.00 | 5.53 | 0.00 | 98.03 | 0.00 | 5.83 | 0.00 | 706.26 | 7.20 | 0.00 | 0.00 | 699.06 |
| 602+00 | 60200.00 | 50.00 | 35.55 | 0.00 | 0.00 | 0.00 | 69.44 | 0.00 | 5.12 | 0.00 | 775.70 | 12.83 | 0.00 | 0.00 | 762.87 |
| 602+50 | 60250.00 | 50.00 | 24.44 | 0.00 | 0.01 | 0.00 | 55.55 | 0.00 | 0.01 | 0.00 | 831.25 | 12.84 | 0.00 | 0.00 | 818.40 |
| 602+68 | 60268.38 | 18.38 | 20.00 | 0.00 | 0.01 | 0.00 | 15.13 | 0.00 | 0.01 | 0.00 | 846.37 | 12.85 | 0.00 | 0.00 | 833.52 |
| 602+68 | 60268.38 | 0.00 | 12.65 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 846.37 | 12.85 | 0.00 | 0.00 | 833.52 |
| 603+00 | 60300.00 | 31.62 | 7.92 | 0.00 | 0.01 | 0.00 | 12.04 | 0.00 | 0.01 | 0.00 | 858.42 | 12.86 | 0.00 | 0.00 | 845.56 |
| 603+50 | 60350.00 | 50.00 | 0.79 | 0.00 | 0.62 | 0.00 | 8.06 | 0.00 | 0.58 | 0.00 | 866.48 | 13.51 | 0.00 | 0.00 | 852.98 |
| 603+68 BK | 60367.95 | 17.95 | 0.01 | 0.00 | 2.44 | 0.00 | 0.27 | 0.00 | 1.02 | 0.00 | 866.75 | 14.62 | 0.00 | 0.00 | 852.13 |
| | | | | | | Column totals | 964.15 | 0.00 | 13.29 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4725
September 14, 2015

9

9

PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4725 | E

**Division 4 RAMP WS**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 556+10 AH | 55610.25 | 0.00 | 44.14 | 0.00 | 1.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 556+50 | 55650.00 | 39.75 | 46.08 | 0.00 | 0.69 | 0.00 | 66.41 | 0.00 | 1.41 | 0.00 | 66.41 | 1.55 | 0.00 | 0.00 | 64.87 |
| 557+00 | 55700.00 | 50.00 | 55.15 | 0.00 | 0.10 | 0.00 | 93.73 | 0.00 | 0.73 | 0.00 | 160.14 | 2.35 | 0.00 | 0.00 | 157.79 |
| 557+50 | 55750.00 | 50.00 | 56.76 | 0.00 | 0.00 | 0.00 | 103.62 | 0.00 | 0.09 | 0.00 | 263.76 | 2.45 | 0.00 | 0.00 | 261.31 |
| 558+00 | 55800.00 | 50.00 | 46.03 | 0.00 | 0.00 | 0.00 | 95.18 | 0.00 | 0.00 | 0.00 | 358.94 | 2.45 | 0.00 | 0.00 | 356.49 |
| 558+50 | 55850.00 | 50.00 | 37.23 | 0.00 | 0.51 | 0.00 | 77.09 | 0.00 | 0.47 | 0.00 | 436.03 | 2.97 | 0.00 | 0.00 | 433.06 |
| 558+60 BK | 55860.00 | 10.00 | 49.08 | 0.00 | 1.03 | 0.00 | 15.98 | 0.00 | 0.29 | 0.00 | 452.02 | 3.29 | 0.00 | 0.00 | 448.73 |
| | | | | | Column totals | | 452.02 | 0.00 | 2.99 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4726
September 14, 2015


9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:33 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew101 PLOT SCALE : 1:1

**Division 4 RAMP WN**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 598+50 AH | 59850.00 | 0.00 | 0.00 | 0.00 | 3386.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 599+00 | 59900.00 | 50.00 | 0.00 | 0.00 | 4651.64 | 0.00 | 0.00 | 0.00 | 7442.64 | 0.00 | 0.00 | 8186.90 | 0.00 | 0.00 | -8186.90 |
| 599+50 | 59950.00 | 50.00 | 0.00 | 0.00 | 2867.47 | 0.00 | 0.00 | 0.00 | 6962.14 | 0.00 | 0.00 | 15845.26 | 0.00 | 0.00 | -15845.26 |
| 600+00 | 60000.00 | 50.00 | 0.00 | 0.00 | 1524.87 | 0.00 | 0.00 | 0.00 | 4066.98 | 0.00 | 0.00 | 20318.94 | 0.00 | 0.00 | -20318.94 |
| 600+50 | 60050.00 | 50.00 | 0.00 | 0.00 | 787.48 | 0.00 | 0.00 | 0.00 | 2141.06 | 0.00 | 0.00 | 22674.11 | 0.00 | 0.00 | -22674.11 |
| 601+00 BK | 60100.00 | 50.00 | 0.00 | 0.00 | 433.82 | 0.00 | 0.00 | 0.00 | 1130.83 | 0.00 | 0.00 | 23918.02 | 0.00 | 0.00 | -23918.02 |
| | | | | | | Column totals | 0.00 | 0.00 | 21743.66 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4727
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:33 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew102 PLOT SCALE : 1:1

**Division 4 RAMP EN**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Salvaged/ Unusable Pavement Material Note 2 | Fill Note 3 | EBS | Cumulative Vol (CY) Cut Note 1 | Expanded Fill 1.1 | Expanded EBS Backfill 1.30 Note 4 | Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 527+00 AH | 52700.00 | 0.00 | 0.00 | 0.00 | 521.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.10 | 0.00 | 0.00 | 0.00 |
| 527+50 | 52750.00 | 50.00 | 0.00 | 0.00 | 473.92 | 0.00 | 0.00 | 0.00 | 921.44 | 0.00 | 0.00 | 1014.69 | 0.00 | 0.00 | -1013.59 |
| 528+00 | 52800.00 | 50.00 | 0.00 | 0.00 | 253.82 | 0.00 | 0.00 | 0.00 | 673.83 | 0.00 | 0.00 | 1755.91 | 0.00 | 0.00 | -1754.81 |
| 528+50 | 52850.00 | 50.00 | 0.00 | 0.00 | 713.21 | 0.00 | 0.00 | 0.00 | 895.40 | 0.00 | 0.00 | 2740.84 | 0.00 | 0.00 | -2739.74 |
| 529+00 | 52900.00 | 50.00 | 0.00 | 0.00 | 1989.10 | 0.00 | 0.00 | 0.00 | 2502.14 | 0.00 | 0.00 | 5493.20 | 0.00 | 0.00 | -5492.10 |
| 529+50 | 52950.00 | 50.00 | 0.00 | 0.00 | 2289.20 | 0.00 | 0.00 | 0.00 | 3961.39 | 0.00 | 0.00 | 9850.72 | 0.00 | 0.00 | -9849.62 |
| 530+00 | 53000.00 | 50.00 | 0.00 | 0.00 | 2318.43 | 0.00 | 0.00 | 0.00 | 4266.32 | 0.00 | 0.00 | 14543.68 | 0.00 | 0.00 | -14542.58 |
| 530+50 | 53050.00 | 50.00 | 0.00 | 0.00 | 1689.81 | 0.00 | 0.00 | 0.00 | 3711.33 | 0.00 | 0.00 | 18626.15 | 0.00 | 0.00 | -18625.05 |
| 531+00 | 53100.00 | 50.00 | 0.00 | 0.00 | 1224.47 | 0.00 | 0.00 | 0.00 | 2698.41 | 0.00 | 0.00 | 21594.40 | 0.00 | 0.00 | -21593.30 |
| 531+50 BK | 53150.00 | 50.00 | 0.00 | 0.00 | 847.77 | 0.00 | 0.00 | 0.00 | 1918.74 | 0.00 | 0.00 | 23705.01 | 0.00 | 0.00 | -23703.91 |
| 540+30 AH | 54030.39 | 0.00 | 145.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 540+50 | 54050.00 | 19.61 | 139.97 | 0.00 | 0.00 | 0.00 | 103.67 | 0.00 | 0.00 | 0.00 | 103.67 | 0.00 | 0.00 | 0.00 | 103.67 |
| 541+00 | 54100.00 | 50.00 | 132.94 | 0.00 | 0.00 | 0.00 | 252.69 | 0.00 | 0.00 | 0.00 | 356.37 | 0.00 | 0.00 | 0.00 | 356.37 |
| 541+50 | 54150.00 | 50.00 | 126.72 | 0.00 | 0.00 | 0.00 | 240.43 | 0.00 | 0.00 | 0.00 | 596.79 | 0.00 | 0.00 | 0.00 | 596.79 |
| 542+00 | 54200.00 | 50.00 | 118.63 | 0.00 | 0.00 | 0.00 | 227.18 | 0.00 | 0.00 | 0.00 | 823.97 | 0.00 | 0.00 | 0.00 | 823.97 |
| 542+50 | 54250.00 | 50.00 | 107.97 | 0.00 | 0.00 | 0.00 | 209.81 | 0.00 | 0.00 | 0.00 | 1033.78 | 0.00 | 0.00 | 0.00 | 1033.78 |
| 542+66 BK | 54265.62 | 15.62 | 104.54 | 0.00 | 0.00 | 0.00 | 61.47 | 0.00 | 0.00 | 0.00 | 1095.25 | 0.00 | 0.00 | 0.00 | 1095.25 |
| Column totals | | | | | | | 1095.25 | 0.00 | 21549.01 | 0.00 | | | | | |

3

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4728
September 14, 2015

**Division 4 RAMP BA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 724+59 AH | 72459.43 | 0.00 | 155.55 | 0.00 | 89.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 725+00 | 72500.00 | 40.57 | 0.00 | 0.00 | 459.33 | 0.00 | 116.86 | 0.00 | 412.32 | 0.00 | 116.86 | 453.55 | 0.00 | 0.00 | -336.69 |
| 725+50 | 72550.00 | 50.00 | 0.01 | 0.00 | 307.03 | 0.00 | 0.01 | 0.00 | 709.59 | 0.00 | 116.87 | 1234.10 | 0.00 | 0.00 | -1117.23 |
| 726+00 | 72600.00 | 50.00 | 0.00 | 0.00 | 274.56 | 0.00 | 0.01 | 0.00 | 538.51 | 0.00 | 116.88 | 1826.46 | 0.00 | 0.00 | -1709.58 |
| 726+50 | 72650.00 | 50.00 | 0.00 | 0.00 | 218.34 | 0.00 | 0.00 | 0.00 | 456.39 | 0.00 | 116.88 | 2328.49 | 0.00 | 0.00 | -2211.61 |
| 727+00 | 72700.00 | 50.00 | 0.00 | 0.00 | 170.95 | 0.00 | 0.00 | 0.00 | 360.45 | 0.00 | 116.88 | 2724.99 | 0.00 | 0.00 | -2608.11 |
| 727+50 | 72750.00 | 50.00 | 1.28 | 0.00 | 100.72 | 0.00 | 1.19 | 0.00 | 251.55 | 0.00 | 118.07 | 3001.69 | 0.00 | 0.00 | -2883.62 |
| 728+00 | 72800.00 | 50.00 | 54.57 | 0.00 | 5.17 | 0.00 | 51.71 | 0.00 | 98.05 | 0.00 | 169.78 | 3109.54 | 0.00 | 0.00 | -2939.76 |
| 728+50 | 72850.00 | 50.00 | 98.15 | 0.00 | 38.23 | 0.00 | 141.41 | 0.00 | 40.19 | 0.00 | 311.19 | 3153.75 | 0.00 | 0.00 | -2842.56 |
| 729+00 | 72900.00 | 50.00 | 266.58 | 0.00 | 0.27 | 0.00 | 337.71 | 0.00 | 35.65 | 0.00 | 648.90 | 3192.96 | 0.00 | 0.00 | -2544.06 |
| 729+50 | 72950.00 | 50.00 | 446.55 | 0.00 | 0.00 | 0.00 | 660.31 | 0.00 | 0.25 | 0.00 | 1309.21 | 3193.23 | 0.00 | 0.00 | -1884.03 |
| 730+00 | 73000.00 | 50.00 | 652.16 | 0.00 | 0.00 | 0.00 | 1017.32 | 0.00 | 0.00 | 0.00 | 2326.53 | 3193.23 | 0.00 | 0.00 | -866.70 |
| 730+50 | 73050.00 | 50.00 | 676.85 | 0.00 | 0.00 | 0.00 | 1230.56 | 0.00 | 0.00 | 0.00 | 3557.10 | 3193.23 | 0.00 | 0.00 | 363.86 |
| 731+00 | 73100.00 | 50.00 | 689.92 | 0.00 | 0.00 | 0.00 | 1265.53 | 0.00 | 0.00 | 0.00 | 4822.62 | 3193.23 | 0.00 | 0.00 | 1629.39 |
| 731+50 | 73150.00 | 50.00 | 700.51 | 0.00 | 0.00 | 0.00 | 1287.44 | 0.00 | 0.00 | 0.00 | 6110.06 | 3193.23 | 0.00 | 0.00 | 2916.83 |
| 732+00 | 73200.00 | 50.00 | 713.12 | 0.00 | 227.35 | 0.00 | 1308.92 | 0.00 | 210.51 | 0.00 | 7418.98 | 3424.79 | 0.00 | 0.00 | 3994.18 |
| 732+50 | 73250.00 | 50.00 | 558.31 | 0.00 | 1126.65 | 0.00 | 1177.25 | 0.00 | 1253.70 | 0.00 | 8596.23 | 4803.87 | 0.00 | 0.00 | 3792.36 |
| 732+80 | 73279.78 | 29.78 | 507.79 | 0.00 | 1536.36 | 0.00 | 587.93 | 0.00 | 1468.60 | 0.00 | 9184.16 | 6419.33 | 0.00 | 0.00 | 2764.83 |
| 732+80 | 73279.78 | 0.00 | 655.27 | 0.00 | 1536.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9184.16 | 6419.33 | 0.00 | 0.00 | 2764.83 |
| 733+00 | 73300.00 | 20.22 | 584.78 | 0.00 | 1854.48 | 0.00 | 464.33 | 0.00 | 1269.79 | 0.00 | 9648.49 | 7816.10 | 0.00 | 0.00 | 1832.39 |
| 733+50 | 73350.00 | 50.00 | 369.10 | 0.00 | 2807.72 | 0.00 | 883.22 | 0.00 | 4316.85 | 0.00 | 10531.71 | 12564.63 | 0.00 | 0.00 | -2032.92 |
| 734+00 | 73400.00 | 50.00 | 289.93 | 0.00 | 2302.16 | 0.00 | 610.21 | 0.00 | 4731.37 | 0.00 | 11141.92 | 17769.14 | 0.00 | 0.00 | -6627.22 |
| 734+17 | 73416.78 | 16.78 | 272.75 | 0.00 | 0.00 | 0.00 | 174.85 | 0.00 | 715.37 | 0.00 | 11316.77 | 18556.05 | 0.00 | 0.00 | -7239.28 |
| 734+50 | 73450.00 | 33.22 | 243.18 | 0.00 | 0.00 | 0.00 | 317.39 | 0.00 | 0.00 | 0.00 | 11634.16 | 18556.05 | 0.00 | 0.00 | -6921.89 |
| 735+00 | 73500.00 | 50.00 | 205.46 | 0.00 | 17.09 | 0.00 | 415.41 | 0.00 | 15.82 | 0.00 | 12049.57 | 18573.46 | 0.00 | 0.00 | -6523.89 |
| 735+35 BK | 73534.70 | 34.70 | 191.47 | 0.00 | 1531.55 | 0.00 | 255.06 | 0.00 | 995.14 | 0.00 | 12304.64 | 19668.12 | 0.00 | 0.00 | -7363.48 |
| | | | | | | Column totals | 12304.64 | 0.00 | 17880.11 | 0.00 | | | | | |

3

1

Addendum No. 03
ID 1060-33-81
Revised Sheet 4729
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

**Division 4 RAMP WJ**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 746+47 AH | 74647.24 | 0.00 | 94.78 | 0.00 | 257.62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 746+50 | 74650.00 | 2.76 | 94.93 | 0.00 | 243.77 | 0.00 | 9.70 | 0.00 | 25.63 | 0.00 | 9.70 | 28.19 | 0.00 | 0.00 | -18.49 |
| 747+00 | 74700.00 | 50.00 | 102.81 | 0.00 | 57.40 | 0.00 | 183.09 | 0.00 | 278.86 | 0.00 | 192.79 | 334.94 | 0.00 | 0.00 | -142.15 |
| 747+50 | 74750.00 | 50.00 | 92.72 | 0.00 | 5.88 | 0.00 | 181.05 | 0.00 | 58.59 | 0.00 | 373.84 | 399.39 | 0.00 | 0.00 | -25.55 |
| 748+00 | 74800.00 | 50.00 | 81.98 | 0.00 | 7.24 | 0.00 | 161.76 | 0.00 | 12.15 | 0.00 | 535.59 | 412.75 | 0.00 | 0.00 | 122.84 |
| 748+50 | 74850.00 | 50.00 | 63.10 | 0.00 | 9.30 | 0.00 | 134.33 | 0.00 | 15.31 | 0.00 | 669.93 | 429.60 | 0.00 | 0.00 | 240.33 |
| 749+00 | 74900.00 | 50.00 | 93.39 | 0.00 | 9.08 | 0.00 | 144.90 | 0.00 | 17.02 | 0.00 | 814.83 | 448.32 | 0.00 | 0.00 | 366.51 |
| 749+50 | 74950.00 | 50.00 | 115.55 | 0.00 | 5.01 | 0.00 | 193.46 | 0.00 | 13.05 | 0.00 | 1008.29 | 462.67 | 0.00 | 0.00 | 545.62 |
| 750+00 | 75000.00 | 50.00 | 145.38 | 0.00 | 0.00 | 0.00 | 241.60 | 0.00 | 4.64 | 0.00 | 1249.89 | 467.77 | 0.00 | 0.00 | 782.12 |
| 750+04 | 75004.11 | 4.11 | 147.34 | 0.00 | 0.00 | 0.00 | 22.28 | 0.00 | 0.00 | 0.00 | 1272.17 | 467.77 | 0.00 | 0.00 | 804.40 |
| 750+04 | 75004.11 | 0.00 | 112.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1272.17 | 467.77 | 0.00 | 0.00 | 804.40 |
| 750+38 | 75037.70 | 33.59 | 120.53 | 0.00 | 0.00 | 0.00 | 144.82 | 0.00 | 0.00 | 0.00 | 1416.99 | 467.77 | 0.00 | 0.00 | 949.22 |
| 750+38 | 75037.70 | 0.00 | 0.00 | 0.00 | 0.68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1416.99 | 467.77 | 0.00 | 0.00 | 949.22 |
| 750+50 | 75050.00 | 12.30 | 0.00 | 0.00 | 2.58 | 0.00 | 0.00 | 0.00 | 0.74 | 0.00 | 1416.99 | 468.59 | 0.00 | 0.00 | 948.40 |
| 750+92 BK | 75091.91 | 41.91 | 5.00 | 0.00 | 4.80 | 0.00 | 3.88 | 0.00 | 5.73 | 0.00 | 1420.87 | 474.89 | 0.00 | 0.00 | 945.98 |
| | | | | | Column totals | | 1420.87 | 0.00 | 431.72 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4730
September 14, 2015


9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:33 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew105 PLOT SCALE : 1:1

**Division 4 RAMP FC**

| STATION | Real Station | Distance | AREA (SF) | | | | Incremental Vol (CY) (Unadjusted) | | | | Cumulative Vol (CY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut 1.0 | Expanded Fill 1.1 | Expanded EBS Backfill 1.3 | Reduced EBS In Fill 0.8 | Mass Ordinate |
| | | | | | | | Note 1 | Note 2 | Note 3 | | | | Note 4 | Note 5 | Note 6 |
| 789+81 AH | 78980.89 | 0.00 | 329.00 | 0.00 | 405.76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 790+00 | 79000.00 | 19.11 | 609.45 | 0.00 | 459.68 | 0.00 | 332.11 | 0.00 | 306.27 | 0.00 | 332.11 | 336.90 | 0.00 | 0.00 | -4.79 |
| 790+50 | 79050.00 | 50.00 | 1102.96 | 0.00 | 568.60 | 0.00 | 1585.56 | 0.00 | 952.11 | 0.00 | 1917.67 | 1384.22 | 0.00 | 0.00 | 533.45 |
| 791+00 | 79100.00 | 50.00 | 1407.72 | 0.00 | 609.37 | 0.00 | 2324.70 | 0.00 | 1090.71 | 0.00 | 4242.38 | 2584.00 | 0.00 | 0.00 | 1658.37 |
| 791+50 | 79150.00 | 50.00 | 1699.24 | 0.00 | 3180.03 | 0.00 | 2876.81 | 0.00 | 3508.70 | 0.00 | 7119.19 | 6443.58 | 0.00 | 0.00 | 675.61 |
| 791+95 | 79194.9 | 44.90 | 2035.67 | 0.00 | 2376.30 | 0.00 | 3105.51 | 0.00 | 4619.99 | 0.00 | 10224.70 | 11525.56 | 0.00 | 0.00 | -1300.86 |
| 791+95 | 79194.9 | 0.00 | 1579.00 | 0.00 | 2369.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10224.70 | 11525.56 | 0.00 | 0.00 | -1300.86 |
| 792+00 | 79200.00 | 5.10 | 1675.79 | 1.00 | 2282.95 | 0.00 | 307.40 | 0.00 | 439.38 | 0.00 | 10532.10 | 12008.88 | 0.00 | 0.00 | -1476.79 |
| 792+50 | 79250.00 | 50.00 | 2148.20 | 2.00 | 1384.33 | 0.00 | 3540.73 | 0.00 | 3395.63 | 0.00 | 14072.83 | 15744.08 | 0.00 | 0.00 | -1671.25 |
| 792+86 BK | 79285.77 | 35.77 | 2999.84 | 3.00 | 690.18 | 0.00 | 3410.10 | 0.00 | 1374.17 | 0.00 | 17482.93 | 17255.66 | 0.00 | 0.00 | 227.26 |
| | | | | | | Column totals | 17482.93 | 0.00 | 15686.97 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4731
September 14, 2015


9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:33 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew106 PLOT SCALE : 1:1

**Division 4 W. WISCONSIN AVENUE**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29+72 AH | 2971.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 29+77 | 2976.71 | 4.78 | 0.00 | 0.00 | 1636.14 | 0.00 | 0.00 | 0.00 | 144.83 | 0.00 | 0.00 | 159.31 | 0.00 | 0.00 | -159.31 |
| 30+00 | 3000.00 | 23.29 | 0.00 | 0.00 | 1797.85 | 0.00 | 0.00 | 0.00 | 1481.07 | 0.00 | 0.00 | 1788.49 | 0.00 | 0.00 | -1788.49 |
| 30+50 | 3050.00 | 50.00 | 0.00 | 0.00 | 2375.98 | 0.00 | 0.00 | 0.00 | 3864.66 | 0.00 | 0.00 | 6039.61 | 0.00 | 0.00 | -6039.61 |
| 31+00 | 3100.00 | 50.00 | 0.00 | 0.00 | 642.00 | 0.00 | 0.00 | 0.00 | 2794.43 | 0.00 | 0.00 | 9113.48 | 0.00 | 0.00 | -9113.48 |
| 31+50 | 3150.00 | 50.00 | 0.87 | 0.00 | 72.16 | 0.00 | 0.81 | 0.00 | 661.26 | 0.00 | 0.81 | 9840.86 | 0.00 | 0.00 | -9840.06 |
| 32+00 | 3200.00 | 50.00 | 0.01 | 0.00 | 9.71 | 0.00 | 0.81 | 0.00 | 75.81 | 0.00 | 1.62 | 9924.25 | 0.00 | 0.00 | -9922.63 |
| 32+50 | 3250.00 | 50.00 | 21.46 | 0.00 | 0.00 | 0.00 | 19.88 | 0.00 | 8.99 | 0.00 | 21.50 | 9934.14 | 0.00 | 0.00 | -9912.64 |
| 33+00 | 3300.00 | 50.00 | 66.79 | 0.00 | 19.73 | 0.00 | 81.71 | 0.00 | 18.27 | 0.00 | 103.21 | 9954.23 | 0.00 | 0.00 | -9851.02 |
| 33+50 | 3350.00 | 50.00 | 82.17 | 0.00 | 8.17 | 0.00 | 137.93 | 0.00 | 25.83 | 0.00 | 241.14 | 9982.65 | 0.00 | 0.00 | -9741.51 |
| 34+00 | 3400.00 | 50.00 | 98.37 | 0.00 | 3.44 | 0.00 | 167.17 | 0.00 | 10.75 | 0.00 | 408.31 | 9994.48 | 0.00 | 0.00 | -9586.17 |
| 34+50 | 3450.00 | 50.00 | 122.57 | 0.00 | 1.56 | 0.00 | 204.57 | 0.00 | 4.63 | 0.00 | 612.88 | 9999.57 | 0.00 | 0.00 | -9386.69 |
| 35+00 | 3500.00 | 50.00 | 117.54 | 0.00 | 0.32 | 0.00 | 222.32 | 0.00 | 1.74 | 0.00 | 835.20 | 10001.48 | 0.00 | 0.00 | -9166.28 |
| 35+50 | 3550.00 | 50.00 | 118.28 | 0.00 | 0.03 | 0.00 | 218.35 | 0.00 | 0.32 | 0.00 | 1053.56 | 10001.84 | 0.00 | 0.00 | -8948.28 |
| 36+00 | 3600.00 | 50.00 | 148.14 | 0.00 | 0.00 | 0.00 | 246.69 | 0.00 | 0.03 | 0.00 | 1300.24 | 10001.87 | 0.00 | 0.00 | -8701.63 |
| 36+50 | 3650.00 | 50.00 | 112.87 | 0.00 | 0.00 | 0.00 | 241.68 | 0.00 | 0.00 | 0.00 | 1541.92 | 10001.87 | 0.00 | 0.00 | -8459.95 |
| 36+92 BK | 3691.51 | 41.51 | 91.99 | 0.00 | 0.00 | 0.00 | 157.48 | 0.00 | 0.00 | 0.00 | 1699.39 | 10001.87 | 0.00 | 0.00 | -8302.48 |
| | | | | | Column totals | | 1699.39 | 0.00 | 9092.61 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4732
September 14, 2015

**Division 4 N. 95TH STREET**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 48+50 AH | 4850.00 | 0.00 | 113.81 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 49+00 | 4900.00 | 50.00 | 96.74 | 0.00 | 7.05 | 0.00 | 194.95 | 0.00 | 6.60 | 0.00 | 194.95 | 7.26 | 0.00 | 0.00 | 187.69 |
| 49+50 | 4950.00 | 50.00 | 35.76 | 0.00 | 55.53 | 0.00 | 122.69 | 0.00 | 57.94 | 0.00 | 317.64 | 71.00 | 0.00 | 0.00 | 246.64 |
| 49+69 BK | 4969.17 | 19.17 | 12.05 | 0.00 | 15.53 | 0.00 | 16.97 | 0.00 | 25.23 | 0.00 | 334.61 | 98.75 | 0.00 | 0.00 | 235.86 |
| 50+39 AH | 5038.66 | 0.00 | 4.42 | 0.00 | 18.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 50+50 | 5050.00 | 11.34 | 40.11 | 0.00 | 9.62 | 0.00 | 9.35 | 0.00 | 5.99 | 0.00 | 9.35 | 6.59 | 0.00 | 0.00 | 2.77 |
| 50+94 BK | 5093.62 | 43.62 | 42.97 | 0.00 | 44.68 | 0.00 | 67.11 | 0.00 | 43.86 | 0.00 | 76.46 | 54.83 | 0.00 | 0.00 | 21.63 |
| | | Column totals | | | | | 411.07 | 0.00 | 139.62 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4733
September 14, 2015

9

9

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4733 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:33 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew108 PLOT SCALE : 1:1

**Division 4 SW CORE POND (EW)**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 180+50 AH | 18050.00 | 0.00 | 0.00 | 0.00 | 79.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 181+00 | 18100.00 | 50.00 | 0.00 | 0.00 | 123.08 | 0.00 | 0.00 | 0.00 | 187.69 | 0.00 | 0.00 | 206.46 | 0.00 | 0.00 | -206.46 |
| 181+50 | 18150.00 | 50.00 | 0.00 | 0.00 | 104.66 | 0.00 | 0.00 | 0.00 | 210.87 | 0.00 | 0.00 | 438.42 | 0.00 | 0.00 | -438.42 |
| 182+00 | 18200.00 | 50.00 | 132.38 | 0.00 | 0.00 | 0.00 | 122.57 | 0.00 | 96.91 | 0.00 | 122.57 | 545.02 | 0.00 | 0.00 | -422.45 |
| 182+50 | 18250.00 | 50.00 | 355.43 | 0.00 | 0.00 | 0.00 | 451.68 | 0.00 | 0.00 | 0.00 | 574.25 | 545.02 | 0.00 | 0.00 | 29.23 |
| 183+00 | 18300.00 | 50.00 | 714.52 | 0.00 | 0.00 | 0.00 | 990.69 | 0.00 | 0.00 | 0.00 | 1564.94 | 545.02 | 0.00 | 0.00 | 1019.93 |
| 183+50 | 18350.00 | 50.00 | 1087.61 | 0.00 | 0.00 | 0.00 | 1668.64 | 0.00 | 0.00 | 0.00 | 3233.58 | 545.02 | 0.00 | 0.00 | 2688.56 |
| 184+00 | 18400.00 | 50.00 | 1448.69 | 0.00 | 0.00 | 0.00 | 2348.43 | 0.00 | 0.00 | 0.00 | 5582.01 | 545.02 | 0.00 | 0.00 | 5036.99 |
| 184+50 | 18450.00 | 50.00 | 1555.45 | 0.00 | 0.00 | 0.00 | 2781.61 | 0.00 | 0.00 | 0.00 | 8363.62 | 545.02 | 0.00 | 0.00 | 7818.60 |
| 185+00 | 18500.00 | 50.00 | 1616.83 | 0.00 | 0.00 | 0.00 | 2937.30 | 0.00 | 0.00 | 0.00 | 11300.92 | 545.02 | 0.00 | 0.00 | 10755.90 |
| 185+50 | 18550.00 | 50.00 | 780.48 | 0.00 | 1.69 | 0.00 | 2219.73 | 0.00 | 1.56 | 0.00 | 13520.65 | 546.74 | 0.00 | 0.00 | 12973.91 |
| 185+95 BK | 18594.50 | 44.50 | 6.46 | 0.00 | 0.00 | 0.00 | 648.50 | 0.00 | 1.39 | 0.00 | 14169.15 | 548.27 | 0.00 | 0.00 | 13620.87 |
| | | | | | | Column totals | 14169.15 | 0.00 | 498.43 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4734
September 14, 2015

9

9

PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4734 | E

**Division 5 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 162+00 AH | 16200.00 | 0.00 | 86.12 | 0.00 | 1.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 162+50 | 16250.00 | 50.00 | 58.04 | 0.00 | 8.96 | 0.00 | 133.48 | 0.00 | 9.56 | 0.00 | 133.48 | 10.51 | 0.00 | 0.00 | 122.97 |
| 163+00 | 16300.00 | 50.00 | 49.06 | 0.00 | 17.26 | 0.00 | 99.17 | 0.00 | 24.28 | 0.00 | 232.65 | 37.22 | 0.00 | 0.00 | 195.43 |
| 163+50 | 16350.00 | 50.00 | 53.81 | 0.00 | 21.36 | 0.00 | 95.25 | 0.00 | 35.76 | 0.00 | 327.90 | 76.55 | 0.00 | 0.00 | 251.35 |
| 164+00 | 16400.00 | 50.00 | 63.55 | 0.00 | 30.98 | 0.00 | 108.67 | 0.00 | 48.46 | 0.00 | 436.56 | 129.86 | 0.00 | 0.00 | 306.70 |
| 164+50 | 16450.00 | 50.00 | 71.57 | 0.00 | 33.18 | 0.00 | 125.11 | 0.00 | 59.41 | 0.00 | 561.68 | 195.21 | 0.00 | 0.00 | 366.47 |
| 165+00 | 16500.00 | 50.00 | 80.46 | 0.00 | 37.24 | 0.00 | 140.77 | 0.00 | 65.20 | 0.00 | 702.44 | 266.93 | 0.00 | 0.00 | 435.51 |
| 165+50 | 16550.00 | 50.00 | 97.82 | 0.00 | 48.93 | 0.00 | 165.07 | 0.00 | 79.79 | 0.00 | 867.52 | 354.70 | 0.00 | 0.00 | 512.82 |
| 166+00 | 16600.00 | 50.00 | 107.71 | 0.00 | 60.40 | 0.00 | 190.31 | 0.00 | 101.23 | 0.00 | 1057.82 | 466.05 | 0.00 | 0.00 | 591.77 |
| 166+50 | 16650.00 | 50.00 | 112.31 | 0.00 | 18.80 | 0.00 | 203.72 | 0.00 | 73.33 | 0.00 | 1261.55 | 546.72 | 0.00 | 0.00 | 714.83 |
| 167+00 | 16700.00 | 50.00 | 171.37 | 0.00 | 0.00 | 0.00 | 262.67 | 0.00 | 17.41 | 0.00 | 1524.21 | 565.87 | 0.00 | 0.00 | 958.34 |
| 167+50 | 16750.00 | 50.00 | 94.33 | 0.00 | 0.00 | 0.00 | 246.02 | 0.00 | 0.00 | 0.00 | 1770.23 | 565.87 | 0.00 | 0.00 | 1204.36 |
| 168+00 | 16800.00 | 50.00 | 81.66 | 0.00 | 0.00 | 0.00 | 162.95 | 0.00 | 0.00 | 0.00 | 1933.19 | 565.87 | 0.00 | 0.00 | 1367.32 |
| 168+50 | 16850.00 | 50.00 | 71.01 | 0.00 | 0.00 | 0.00 | 141.36 | 0.00 | 0.00 | 0.00 | 2074.55 | 565.87 | 0.00 | 0.00 | 1508.68 |
| 169+00 | 16900.00 | 50.00 | 63.38 | 0.00 | 0.00 | 0.00 | 124.44 | 0.00 | 0.00 | 0.00 | 2198.98 | 565.87 | 0.00 | 0.00 | 1633.11 |
| 169+50 | 16950.00 | 50.00 | 56.59 | 0.00 | 0.00 | 0.00 | 111.08 | 0.00 | 0.00 | 0.00 | 2310.06 | 565.87 | 0.00 | 0.00 | 1744.20 |
| 170+00 | 17000.00 | 50.00 | 54.08 | 0.00 | 0.00 | 0.00 | 102.47 | 0.00 | 0.00 | 0.00 | 2412.54 | 565.87 | 0.00 | 0.00 | 1846.67 |
| 170+50 | 17050.00 | 50.00 | 54.72 | 0.00 | 0.00 | 0.00 | 100.74 | 0.00 | 0.00 | 0.00 | 2513.28 | 565.87 | 0.00 | 0.00 | 1947.41 |
| 171+00 | 17100.00 | 50.00 | 58.25 | 0.00 | 0.00 | 0.00 | 104.60 | 0.00 | 0.00 | 0.00 | 2617.88 | 565.87 | 0.00 | 0.00 | 2052.01 |
| 171+50 | 17150.00 | 50.00 | 27.85 | 0.00 | 4.98 | 0.00 | 79.72 | 0.00 | 4.61 | 0.00 | 2697.60 | 570.94 | 0.00 | 0.00 | 2126.66 |

1

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4735
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 5 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 172+00 | 17200.00 | 50.00 | 68.69 | 0.00 | 0.00 | 0.00 | 89.39 | 0.00 | 4.61 | 0.00 | 2786.99 | 576.01 | 0.00 | 0.00 | 2210.98 |
| 172+50 | 17250.00 | 50.00 | 80.52 | 0.00 | 0.00 | 0.00 | 138.16 | 0.00 | 0.00 | 0.00 | 2925.15 | 576.01 | 0.00 | 0.00 | 2349.14 |
| 173+00 | 17300.00 | 50.00 | 90.58 | 0.00 | 0.00 | 0.00 | 158.43 | 0.00 | 0.00 | 0.00 | 3083.57 | 576.01 | 0.00 | 0.00 | 2507.56 |
| 173+10 | 17309.66 | 9.66 | 91.41 | 0.00 | 0.00 | 0.00 | 32.56 | 0.00 | 0.00 | 0.00 | 3116.13 | 576.01 | 0.00 | 0.00 | 2540.12 |
| 173+10 | 17309.66 | 0.00 | 40.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3116.13 | 576.01 | 0.00 | 0.00 | 2540.12 |
| 173+50 | 17350.00 | 40.34 | 40.66 | 0.00 | 0.00 | 0.00 | 60.26 | 0.00 | 0.00 | 0.00 | 3176.39 | 576.01 | 0.00 | 0.00 | 2600.37 |
| 174+00 | 17400.00 | 50.00 | 39.96 | 0.00 | 0.00 | 0.00 | 74.65 | 0.00 | 0.00 | 0.00 | 3251.03 | 576.01 | 0.00 | 0.00 | 2675.02 |
| 174+50 | 17450.00 | 50.00 | 38.93 | 0.00 | 0.00 | 0.00 | 73.05 | 0.00 | 0.00 | 0.00 | 3324.08 | 576.01 | 0.00 | 0.00 | 2748.07 |
| 175+00 | 17500.00 | 50.00 | 39.59 | 0.00 | 0.00 | 0.00 | 72.70 | 0.00 | 0.00 | 0.00 | 3396.78 | 576.01 | 0.00 | 0.00 | 2820.77 |
| 175+40 | 17539.93 | 39.93 | 42.02 | 0.00 | 0.00 | 0.00 | 60.35 | 0.00 | 0.00 | 0.00 | 3457.13 | 576.01 | 0.00 | 0.00 | 2881.12 |
| 175+40 | 17539.93 | 0.00 | 427.82 | 0.00 | 3.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3457.13 | 576.01 | 0.00 | 0.00 | 2881.12 |
| 175+50 | 17550.00 | 10.07 | 447.65 | 0.00 | 11.29 | 0.00 | 163.26 | 0.00 | 2.83 | 0.00 | 3620.39 | 579.13 | 0.00 | 0.00 | 3041.26 |
| 176+00 | 17600.00 | 50.00 | 573.16 | 0.00 | 4.34 | 0.00 | 945.19 | 0.00 | 14.47 | 0.00 | 4565.58 | 595.05 | 0.00 | 0.00 | 3970.53 |
| 176+50 | 17650.00 | 50.00 | 737.47 | 0.00 | 3.09 | 0.00 | 1213.55 | 0.00 | 6.88 | 0.00 | 5779.13 | 602.62 | 0.00 | 0.00 | 5176.51 |
| 177+00 | 17700.00 | 50.00 | 836.95 | 0.00 | 4.46 | 0.00 | 1457.80 | 0.00 | 6.99 | 0.00 | 7236.93 | 610.31 | 0.00 | 0.00 | 6626.62 |
| 177+50 | 17750.00 | 50.00 | 848.64 | 0.00 | 2.97 | 0.00 | 1560.73 | 0.00 | 6.88 | 0.00 | 8797.66 | 617.88 | 0.00 | 0.00 | 8179.78 |
| 178+00 | 17800.00 | 50.00 | 867.90 | 0.00 | 0.00 | 0.00 | 1589.39 | 0.00 | 2.75 | 0.00 | 10387.05 | 620.90 | 0.00 | 0.00 | 9766.15 |
| 178+50 | 17850.00 | 50.00 | 840.08 | 0.00 | 12.61 | 0.00 | 1581.46 | 0.00 | 11.68 | 0.00 | 11968.51 | 633.74 | 0.00 | 0.00 | 11334.77 |
| 178+50 | 17850.00 | 0.00 | 839.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 11968.51 | 633.74 | 0.00 | 0.00 | 11334.77 |
| 179+00 | 17900.00 | 50.00 | 711.84 | 0.00 | 10.88 | 0.00 | 1436.26 | 0.00 | 10.07 | 0.00 | 13404.77 | 644.83 | 0.00 | 0.00 | 12759.94 |
| 179+50 | 17950.00 | 50.00 | 616.12 | 0.00 | 63.04 | 0.00 | 1229.59 | 0.00 | 68.44 | 0.00 | 14634.36 | 720.11 | 0.00 | 0.00 | 13914.25 |
| 180+00 BK | 18000.00 | 50.00 | 0.00 | 0.00 | 141.43 | 0.00 | 570.48 | 0.00 | 189.32 | 0.00 | 15204.84 | 928.37 | 0.00 | 0.00 | 14276.47 |
| | | | | | | Column totals | 15204.84 | 0.00 | 843.97 | 0.00 | | | | | |

3

1

Addendum No. 03
ID 1060-33-81
Revised Sheet 4736
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

**Division 5 RAMP WS**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 560+45 AH | 56044.51 | 0.00 | 0.00 | 0.00 | 15.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 560+50 | 56050.00 | 5.49 | 0.00 | 0.00 | 9.97 | 0.00 | 0.00 | 0.00 | 2.56 | 0.00 | 0.00 | 2.81 | 0.00 | 0.00 | -2.81 |
| 561+00 | 56100.00 | 50.00 | 0.00 | 0.00 | 11.67 | 0.00 | 0.00 | 0.00 | 20.04 | 0.00 | 0.00 | 24.85 | 0.00 | 0.00 | -24.85 |
| 561+50 | 56150.00 | 50.00 | 0.00 | 0.00 | 14.51 | 0.00 | 0.00 | 0.00 | 24.24 | 0.00 | 0.00 | 51.52 | 0.00 | 0.00 | -51.52 |
| 561+80 BK | 56180.00 | 30.00 | 0.00 | 0.00 | 17.37 | 0.00 | 0.00 | 0.00 | 17.71 | 0.00 | 0.00 | 71.00 | 0.00 | 0.00 | -71.00 |
| 562+32 AH | 56231.79 | 0.00 | 0.00 | 0.00 | 84.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 562+50 | 56250.00 | 18.21 | 0.00 | 0.00 | 25.32 | 0.00 | 0.00 | 0.00 | 37.11 | 0.00 | 0.00 | 40.82 | 0.00 | 0.00 | -40.82 |
| 563+00 | 56300.00 | 50.00 | 0.00 | 0.00 | 31.38 | 0.00 | 0.00 | 0.00 | 52.50 | 0.00 | 0.00 | 98.57 | 0.00 | 0.00 | -98.57 |
| 563+50 | 56350.00 | 50.00 | 0.00 | 0.00 | 41.86 | 0.00 | 0.00 | 0.00 | 67.81 | 0.00 | 0.00 | 173.17 | 0.00 | 0.00 | -173.17 |
| 564+00 | 56400.00 | 50.00 | 0.00 | 0.00 | 56.42 | 0.00 | 0.00 | 0.00 | 91.00 | 0.00 | 0.00 | 273.27 | 0.00 | 0.00 | -273.27 |
| 564+50 | 56450.00 | 50.00 | 0.00 | 0.00 | 77.68 | 0.00 | 0.00 | 0.00 | 124.17 | 0.00 | 0.00 | 409.85 | 0.00 | 0.00 | -409.85 |
| 565+00 | 56500.00 | 50.00 | 0.00 | 0.00 | 103.49 | 0.00 | 0.00 | 0.00 | 167.75 | 0.00 | 0.00 | 594.38 | 0.00 | 0.00 | -594.38 |
| 565+50 | 56550.00 | 50.00 | 0.00 | 0.00 | 131.57 | 0.00 | 0.00 | 0.00 | 217.65 | 0.00 | 0.00 | 833.79 | 0.00 | 0.00 | -833.79 |
| 566+00 | 56600.00 | 50.00 | 0.00 | 0.00 | 159.78 | 0.00 | 0.00 | 0.00 | 269.77 | 0.00 | 0.00 | 1130.54 | 0.00 | 0.00 | -1130.54 |
| 566+11 BK | 56610.98 | 10.98 | 0.00 | 0.00 | 167.96 | 0.00 | 0.00 | 0.00 | 66.64 | 0.00 | 0.00 | 1203.84 | 0.00 | 0.00 | -1203.84 |
| | | | | | Column totals | | 0.00 | 0.00 | 1158.95 | 0.00 | | | | | |

3

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4737
September 14, 2015

**Division 5 RAMP NE**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material | Incremental Vol (CY) (Unadjusted) Fill | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut | Expanded Fill | Expanded EBS Backfill | Reduced EBS In Fill | Mass Ordinate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 1.00 | 1.1 | 1.30 | 0.80 | |
| | | | | | | | Note 1 | Note 2 | Note 3 | | Note 1 | | Note 4 | Note 5 | Note 6 |
| 550+81 AH | 55081.39 | 0.00 | 0.45 | 0.00 | 3.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 551+00 | 55100.00 | 18.61 | 6.70 | 0.00 | 0.01 | 0.00 | 2.46 | 0.00 | 1.05 | 0.00 | 2.46 | 1.16 | 0.00 | 0.00 | 1.31 |
| 551+22 BK | 55122.18 | 22.18 | 7.65 | 0.00 | 0.00 | 0.00 | 5.89 | 0.00 | 0.00 | 0.00 | 8.36 | 1.16 | 0.00 | 0.00 | 7.20 |
| 553+08 AH | 55307.85 | 0.00 | 2.35 | 0.00 | 74.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 553+50 | 55350.00 | 42.15 | 0.18 | 0.00 | 75.32 | 0.00 | 1.97 | 0.00 | 116.58 | 0.00 | 1.97 | 128.23 | 0.00 | 0.00 | -126.26 |
| 554+00 | 55400.00 | 50.00 | 0.00 | 0.00 | 62.65 | 0.00 | 0.17 | 0.00 | 127.75 | 0.00 | 2.14 | 268.76 | 0.00 | 0.00 | -266.62 |
| 554+50 | 55450.00 | 50.00 | 0.00 | 0.00 | 48.65 | 0.00 | 0.00 | 0.00 | 103.06 | 0.00 | 2.14 | 382.12 | 0.00 | 0.00 | -379.98 |
| 555+00 | 55500.00 | 50.00 | 0.00 | 0.00 | 37.92 | 0.00 | 0.00 | 0.00 | 80.16 | 0.00 | 2.14 | 470.29 | 0.00 | 0.00 | -468.15 |
| 555+50 | 55550.00 | 50.00 | 8.58 | 0.00 | 27.06 | 0.00 | 7.94 | 0.00 | 60.17 | 0.00 | 10.09 | 536.48 | 0.00 | 0.00 | -526.39 |
| 556+00 | 55600.00 | 50.00 | 46.69 | 0.00 | 9.49 | 0.00 | 51.18 | 0.00 | 33.84 | 0.00 | 61.26 | 573.70 | 0.00 | 0.00 | -512.44 |
| 556+50 | 55650.00 | 50.00 | 32.48 | 0.00 | 3.50 | 0.00 | 73.31 | 0.00 | 12.03 | 0.00 | 134.57 | 586.93 | 0.00 | 0.00 | -452.37 |
| 557+00 | 55700.00 | 50.00 | 42.65 | 0.00 | 0.72 | 0.00 | 69.56 | 0.00 | 3.91 | 0.00 | 204.13 | 591.23 | 0.00 | 0.00 | -387.10 |
| 557+50 | 55750.00 | 50.00 | 56.80 | 0.00 | 0.00 | 0.00 | 92.08 | 0.00 | 0.67 | 0.00 | 296.22 | 591.97 | 0.00 | 0.00 | -295.75 |
| 558+00 | 55800.00 | 50.00 | 62.02 | 0.00 | 0.00 | 0.00 | 110.02 | 0.00 | 0.00 | 0.00 | 406.23 | 591.97 | 0.00 | 0.00 | -185.73 |
| 558+50 | 55850.00 | 50.00 | 67.45 | 0.00 | 0.00 | 0.00 | 119.88 | 0.00 | 0.00 | 0.00 | 526.11 | 591.97 | 0.00 | 0.00 | -65.85 |
| 559+00 | 55900.00 | 50.00 | 75.17 | 0.00 | 0.00 | 0.00 | 132.06 | 0.00 | 0.00 | 0.00 | 658.17 | 591.97 | 0.00 | 0.00 | 66.20 |
| 559+50 | 55950.00 | 50.00 | 80.10 | 0.00 | 0.00 | 0.00 | 143.77 | 0.00 | 0.00 | 0.00 | 801.94 | 591.97 | 0.00 | 0.00 | 209.97 |
| 560+00 | 56000.00 | 50.00 | 78.14 | 0.00 | 0.00 | 0.00 | 146.52 | 0.00 | 0.00 | 0.00 | 948.46 | 591.97 | 0.00 | 0.00 | 356.49 |
| 560+50 | 56050.00 | 50.00 | 72.64 | 0.00 | 0.00 | 0.00 | 139.61 | 0.00 | 0.00 | 0.00 | 1088.07 | 591.97 | 0.00 | 0.00 | 496.10 |
| 561+00 | 56100.00 | 50.00 | 67.08 | 0.00 | 0.00 | 0.00 | 129.37 | 0.00 | 0.00 | 0.00 | 1217.44 | 591.97 | 0.00 | 0.00 | 625.47 |
| 561+06 | 56105.60 | 5.60 | 66.23 | 0.00 | 0.00 | 0.00 | 13.82 | 0.00 | 0.00 | 0.00 | 1231.26 | 591.97 | 0.00 | 0.00 | 639.30 |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4738
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 5 RAMP NE**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material | Incremental Vol (CY) (Unadjusted) Fill | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut | Cumulative Vol (CY) Expanded Fill | Cumulative Vol (CY) Expanded EBS Backfill | Cumulative Vol (CY) Reduced EBS In Fill | Mass Ordinate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | 1.00 | 1.1 | 1.30 | 0.80 | |
| | | | | | | | Note 1 | Note 2 | Note 3 | | Note 1 | | Note 4 | Note 5 | Note 6 |
| 561+06 | 56105.60 | 0.00 | 26.68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1231.26 | 591.97 | 0.00 | 0.00 | 639.30 |
| 561+50 | 56150.00 | 44.40 | 5.04 | 0.00 | 0.00 | 0.00 | 26.08 | 0.00 | 0.00 | 0.00 | 1257.34 | 591.97 | 0.00 | 0.00 | 665.38 |
| 561+55 | 56155.00 | 5.00 | 5.04 | 0.00 | 0.00 | 0.00 | 0.93 | 0.00 | 0.00 | 0.00 | 1258.28 | 591.97 | 0.00 | 0.00 | 666.31 |
| 561+55 | 56155.00 | 0.00 | 5.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1258.28 | 591.97 | 0.00 | 0.00 | 666.31 |
| 562+00 | 56200.00 | 45.00 | 5.32 | 0.00 | 0.00 | 0.00 | 8.63 | 0.00 | 0.00 | 0.00 | 1266.91 | 591.97 | 0.00 | 0.00 | 674.95 |
| 562+50 | 56250.00 | 50.00 | 6.56 | 0.00 | 0.00 | 0.00 | 11.00 | 0.00 | 0.00 | 0.00 | 1277.91 | 591.97 | 0.00 | 0.00 | 685.95 |
| 563+00 | 56300.00 | 50.00 | 8.78 | 0.00 | 0.00 | 0.00 | 14.20 | 0.00 | 0.00 | 0.00 | 1292.11 | 591.97 | 0.00 | 0.00 | 700.15 |
| 563+50 | 56350.00 | 50.00 | 11.87 | 0.00 | 0.00 | 0.00 | 19.12 | 0.00 | 0.00 | 0.00 | 1311.23 | 591.97 | 0.00 | 0.00 | 719.27 |
| 564+00 | 56400.00 | 50.00 | 13.15 | 0.00 | 0.00 | 0.00 | 23.17 | 0.00 | 0.00 | 0.00 | 1334.40 | 591.97 | 0.00 | 0.00 | 742.44 |
| 564+50 | 56450.00 | 50.00 | 13.44 | 0.00 | 0.00 | 0.00 | 24.62 | 0.00 | 0.00 | 0.00 | 1359.02 | 591.97 | 0.00 | 0.00 | 767.06 |
| 564+96 BK | 56496.25 | 46.25 | 13.54 | 0.00 | 0.00 | 0.00 | 23.11 | 0.00 | 0.00 | 0.00 | 1382.13 | 591.97 | 0.00 | 0.00 | 790.16 |
| | | Column totals | | | | | 1390.49 | 0.00 | 539.21 | 0.00 | | | | | |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4739
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:33 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew114 PLOT SCALE : 1:1

**Division 5 RAMP SE**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 597+34 AH | 59733.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 597+38 | 59737.62 | 3.63 | 100.07 | 0.00 | 0.14 | 0.00 | 6.73 | 0.00 | 0.01 | 0.00 | 6.73 | 0.01 | 0.00 | 0.00 | 6.72 |
| 597+50 | 59750.00 | 12.38 | 94.53 | 0.00 | 0.07 | 0.00 | 44.61 | 0.00 | 0.05 | 0.00 | 51.34 | 0.06 | 0.00 | 0.00 | 51.28 |
| 598+00 | 59800.00 | 50.00 | 82.21 | 0.00 | 0.21 | 0.00 | 163.65 | 0.00 | 0.26 | 0.00 | 214.99 | 0.35 | 0.00 | 0.00 | 214.64 |
| 598+50 | 59850.00 | 50.00 | 39.71 | 0.00 | 19.28 | 0.00 | 112.89 | 0.00 | 18.05 | 0.00 | 327.88 | 20.20 | 0.00 | 0.00 | 307.68 |
| 599+00 | 59900.00 | 50.00 | 44.92 | 0.00 | 122.30 | 0.00 | 78.36 | 0.00 | 131.09 | 0.00 | 406.24 | 164.40 | 0.00 | 0.00 | 241.84 |
| 599+46 | 59946.40 | 46.40 | 39.54 | 0.00 | 0.02 | 0.00 | 72.57 | 0.00 | 105.10 | 0.00 | 478.81 | 280.02 | 0.00 | 0.00 | 198.80 |
| 599+46 | 59946.40 | 0.00 | 46.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 478.81 | 280.02 | 0.00 | 0.00 | 198.80 |
| 599+50 | 59950.00 | 3.60 | 45.81 | 0.00 | 81.88 | 0.00 | 6.15 | 0.00 | 5.46 | 0.00 | 484.96 | 286.02 | 0.00 | 0.00 | 198.94 |
| 600+00 | 60000.00 | 50.00 | 20.42 | 0.00 | 72.36 | 0.00 | 61.32 | 0.00 | 142.81 | 0.00 | 546.29 | 443.12 | 0.00 | 0.00 | 103.17 |
| 600+50 | 60050.00 | 50.00 | 13.60 | 0.00 | 73.31 | 0.00 | 31.50 | 0.00 | 134.88 | 0.00 | 577.79 | 591.48 | 0.00 | 0.00 | -13.70 |
| 601+00 | 60100.00 | 50.00 | 5.96 | 0.00 | 71.65 | 0.00 | 18.11 | 0.00 | 134.22 | 0.00 | 595.90 | 739.13 | 0.00 | 0.00 | -143.23 |
| 601+30 BK | 60130.30 | 30.30 | 2.29 | 0.00 | 69.87 | 0.00 | 4.63 | 0.00 | 79.41 | 0.00 | 600.53 | 826.48 | 0.00 | 0.00 | -225.95 |
| | | | | | Column totals | | 600.53 | 0.00 | 751.34 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4740
September 14, 2015

**Division 5 RAMP SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 566+78 AH | 56677.50 | 0.00 | 171.93 | 0.00 | 8.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 567+00 | 56700.00 | 22.50 | 35.08 | 0.00 | 9.40 | 0.00 | 86.25 | 0.00 | 7.39 | 0.00 | 86.25 | 8.13 | 0.00 | 0.00 | 78.13 |
| 567+50 | 56750.00 | 50.00 | 0.00 | 0.00 | 30.96 | 0.00 | 32.48 | 0.00 | 37.37 | 0.00 | 118.74 | 49.23 | 0.00 | 0.00 | 69.50 |
| 568+00 | 56800.00 | 50.00 | 0.00 | 0.00 | 17.57 | 0.00 | 0.00 | 0.00 | 44.94 | 0.00 | 118.74 | 98.66 | 0.00 | 0.00 | 20.07 |
| 568+50 | 56850.00 | 50.00 | 0.46 | 0.00 | 14.60 | 0.00 | 0.43 | 0.00 | 29.79 | 0.00 | 119.16 | 131.43 | 0.00 | 0.00 | -12.27 |
| 569+00 | 56900.00 | 50.00 | 1.45 | 0.00 | 13.78 | 0.00 | 1.77 | 0.00 | 26.28 | 0.00 | 120.93 | 160.33 | 0.00 | 0.00 | -39.40 |
| 569+50 | 56950.00 | 50.00 | 1.73 | 0.00 | 13.73 | 0.00 | 2.94 | 0.00 | 25.47 | 0.00 | 123.87 | 188.35 | 0.00 | 0.00 | -64.48 |
| 570+00 | 57000.00 | 50.00 | 3.53 | 0.00 | 16.07 | 0.00 | 4.87 | 0.00 | 27.59 | 0.00 | 128.74 | 218.70 | 0.00 | 0.00 | -89.96 |
| 570+50 | 57050.00 | 50.00 | 12.18 | 0.00 | 12.32 | 0.00 | 14.55 | 0.00 | 26.29 | 0.00 | 143.29 | 247.62 | 0.00 | 0.00 | -104.33 |
| 570+86 | 57086.00 | 36.00 | 4.86 | 0.00 | 29.74 | 0.00 | 11.36 | 0.00 | 28.04 | 0.00 | 154.65 | 278.46 | 0.00 | 0.00 | -123.81 |
| 570+86 | 57086.00 | 0.00 | 7.91 | 0.00 | 17.92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 154.65 | 278.46 | 0.00 | 0.00 | -123.81 |
| 571+00 | 57100.00 | 14.00 | 33.64 | 0.00 | 68.71 | 0.00 | 10.77 | 0.00 | 22.46 | 0.00 | 165.42 | 303.17 | 0.00 | 0.00 | -137.75 |
| 571+50 | 57150.00 | 50.00 | 0.54 | 0.00 | 67.54 | 0.00 | 31.65 | 0.00 | 126.16 | 0.00 | 197.07 | 441.94 | 0.00 | 0.00 | -244.87 |
| 572+00 | 57200.00 | 50.00 | 2.53 | 0.00 | 24.27 | 0.00 | 2.84 | 0.00 | 85.01 | 0.00 | 199.91 | 535.45 | 0.00 | 0.00 | -335.54 |
| 572+50 | 57250.00 | 50.00 | 29.35 | 0.00 | 13.00 | 0.00 | 29.52 | 0.00 | 34.51 | 0.00 | 229.43 | 573.41 | 0.00 | 0.00 | -343.98 |
| 573+00 | 57300.00 | 50.00 | 70.71 | 0.00 | 12.74 | 0.00 | 92.65 | 0.00 | 23.83 | 0.00 | 322.08 | 599.63 | 0.00 | 0.00 | -277.55 |
| 573+00 | 57300.00 | 0.00 | 125.49 | 0.00 | 12.68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 322.08 | 599.63 | 0.00 | 0.00 | -277.55 |
| 573+50 | 57350.00 | 50.00 | 149.82 | 0.00 | 8.11 | 0.00 | 254.92 | 0.00 | 19.25 | 0.00 | 577.00 | 620.81 | 0.00 | 0.00 | -43.81 |
| 574+00 | 57400.00 | 50.00 | 294.94 | 0.00 | 6.35 | 0.00 | 411.81 | 0.00 | 13.39 | 0.00 | 988.81 | 635.53 | 0.00 | 0.00 | 353.28 |
| 574+50 | 57450.00 | 50.00 | 367.17 | 0.00 | 44.49 | 0.00 | 613.06 | 0.00 | 47.07 | 0.00 | 1601.88 | 687.31 | 0.00 | 0.00 | 914.56 |
| 575+00 | 57500.00 | 50.00 | 387.35 | 0.00 | 2.61 | 0.00 | 698.63 | 0.00 | 43.61 | 0.00 | 2300.51 | 735.29 | 0.00 | 0.00 | 1565.22 |
| 575+34 BK | 57534.00 | 34.00 | 392.63 | 0.00 | 0.02 | 0.00 | 491.10 | 0.00 | 1.66 | 0.00 | 2791.61 | 737.11 | 0.00 | 0.00 | 2054.50 |
| | | | | | | Column totals | 2791.61 | 0.00 | 670.10 | 0.00 | | | | | |

3

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4741
September 14, 2015

9

9

**Division 5 RAMP FC**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 801+60 AH | 80160.00 | 0.00 | 20.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 802+00 | 80200.00 | 40.00 | 20.14 | 0.00 | 0.00 | 0.00 | 30.21 | 0.00 | 0.00 | 0.00 | 30.21 | 0.00 | 0.00 | 0.00 | 30.21 |
| 802+50 | 80250.00 | 50.00 | 19.82 | 0.00 | 0.00 | 0.00 | 37.00 | 0.00 | 0.00 | 0.00 | 67.21 | 0.00 | 0.00 | 0.00 | 67.21 |
| 803+00 | 80300.00 | 50.00 | 20.13 | 0.00 | 0.00 | 0.00 | 36.99 | 0.00 | 0.00 | 0.00 | 104.21 | 0.00 | 0.00 | 0.00 | 104.21 |
| 803+50 | 80350.00 | 50.00 | 20.79 | 0.00 | 0.00 | 0.00 | 37.89 | 0.00 | 0.00 | 0.00 | 142.09 | 0.00 | 0.00 | 0.00 | 142.09 |
| 804+00 | 80400.00 | 50.00 | 21.94 | 0.00 | 0.00 | 0.00 | 39.56 | 0.00 | 0.00 | 0.00 | 181.66 | 0.00 | 0.00 | 0.00 | 181.66 |
| 804+50 | 80450.00 | 50.00 | 22.78 | 0.00 | 0.00 | 0.00 | 41.41 | 0.00 | 0.00 | 0.00 | 223.07 | 0.00 | 0.00 | 0.00 | 223.07 |
| 805+00 | 80500.00 | 50.00 | 22.75 | 0.00 | 0.00 | 0.00 | 42.16 | 0.00 | 0.00 | 0.00 | 265.22 | 0.00 | 0.00 | 0.00 | 265.22 |
| 805+50 | 80550.00 | 50.00 | 22.34 | 0.00 | 0.00 | 0.00 | 41.75 | 0.00 | 0.00 | 0.00 | 306.97 | 0.00 | 0.00 | 0.00 | 306.97 |
| 806+00 | 80600.00 | 50.00 | 22.27 | 0.00 | 0.00 | 0.00 | 41.31 | 0.00 | 0.00 | 0.00 | 348.28 | 0.00 | 0.00 | 0.00 | 348.28 |
| 806+50 | 80650.00 | 50.00 | 22.26 | 0.00 | 0.00 | 0.00 | 41.23 | 0.00 | 0.00 | 0.00 | 389.51 | 0.00 | 0.00 | 0.00 | 389.51 |
| 807+00 | 80700.00 | 50.00 | 22.26 | 0.00 | 0.00 | 0.00 | 41.22 | 0.00 | 0.00 | 0.00 | 430.73 | 0.00 | 0.00 | 0.00 | 430.73 |
| 807+50 | 80750.00 | 50.00 | 22.26 | 0.00 | 0.00 | 0.00 | 41.22 | 0.00 | 0.00 | 0.00 | 471.96 | 0.00 | 0.00 | 0.00 | 471.96 |
| 808+00 | 80800.00 | 50.00 | 22.27 | 0.00 | 0.00 | 0.00 | 41.23 | 0.00 | 0.00 | 0.00 | 513.19 | 0.00 | 0.00 | 0.00 | 513.19 |
| 808+50 | 80850.00 | 50.00 | 22.43 | 0.00 | 0.00 | 0.00 | 41.39 | 0.00 | 0.00 | 0.00 | 554.58 | 0.00 | 0.00 | 0.00 | 554.58 |
| 809+00 | 80900.00 | 50.00 | 22.42 | 0.00 | 0.00 | 0.00 | 41.53 | 0.00 | 0.00 | 0.00 | 596.10 | 0.00 | 0.00 | 0.00 | 596.10 |
| 809+22 BK | 80922.38 | 22.38 | 22.47 | 0.00 | 0.00 | 0.00 | 18.60 | 0.00 | 0.00 | 0.00 | 614.71 | 0.00 | 0.00 | 0.00 | 614.71 |
| | | | | | | Column totals | 614.71 | 0.00 | 0.00 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4742
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:34 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew117 PLOT SCALE : 1:1

**Division 5 NSM**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9+58 AH | 958.16 | 0.00 | 27.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10+00 | 1000.00 | 41.84 | 25.23 | 0.00 | 0.00 | 0.00 | 40.68 | 0.00 | 0.00 | 0.00 | 40.68 | 0.00 | 0.00 | 0.00 | 40.68 |
| 10+50 | 1050.00 | 50.00 | 23.38 | 0.00 | 0.00 | 0.00 | 45.01 | 0.00 | 0.00 | 0.00 | 85.69 | 0.00 | 0.00 | 0.00 | 85.69 |
| 11+00 | 1100.00 | 50.00 | 25.25 | 0.00 | 0.00 | 0.00 | 45.03 | 0.00 | 0.00 | 0.00 | 130.71 | 0.00 | 0.00 | 0.00 | 130.71 |
| 11+50 | 1150.00 | 50.00 | 27.71 | 0.00 | 0.00 | 0.00 | 49.04 | 0.00 | 0.00 | 0.00 | 179.75 | 0.00 | 0.00 | 0.00 | 179.75 |
| 12+00 | 1200.00 | 50.00 | 28.26 | 0.00 | 0.00 | 0.00 | 51.82 | 0.00 | 0.00 | 0.00 | 231.58 | 0.00 | 0.00 | 0.00 | 231.58 |
| 12+50 | 1250.00 | 50.00 | 29.28 | 0.00 | 0.00 | 0.00 | 53.28 | 0.00 | 0.00 | 0.00 | 284.85 | 0.00 | 0.00 | 0.00 | 284.85 |
| 13+00 | 1300.00 | 50.00 | 29.96 | 0.00 | 0.00 | 0.00 | 54.85 | 0.00 | 0.00 | 0.00 | 339.71 | 0.00 | 0.00 | 0.00 | 339.71 |
| 13+50 | 1350.00 | 50.00 | 30.53 | 0.00 | 0.00 | 0.00 | 56.01 | 0.00 | 0.00 | 0.00 | 395.71 | 0.00 | 0.00 | 0.00 | 395.71 |
| 14+00 | 1400.00 | 50.00 | 30.26 | 0.00 | 0.00 | 0.00 | 56.29 | 0.00 | 0.00 | 0.00 | 452.00 | 0.00 | 0.00 | 0.00 | 452.00 |
| 14+50 | 1450.00 | 50.00 | 29.31 | 0.00 | 0.00 | 0.00 | 55.16 | 0.00 | 0.00 | 0.00 | 507.16 | 0.00 | 0.00 | 0.00 | 507.16 |
| 15+00 | 1500.00 | 50.00 | 27.46 | 0.00 | 0.00 | 0.00 | 52.56 | 0.00 | 0.00 | 0.00 | 559.72 | 0.00 | 0.00 | 0.00 | 559.72 |
| 15+50 | 1550.00 | 50.00 | 28.99 | 0.00 | 0.00 | 0.00 | 52.27 | 0.00 | 0.00 | 0.00 | 611.99 | 0.00 | 0.00 | 0.00 | 611.99 |
| 16+00 | 1600.00 | 50.00 | 20.71 | 0.00 | 0.32 | 0.00 | 46.02 | 0.00 | 0.30 | 0.00 | 658.01 | 0.33 | 0.00 | 0.00 | 657.69 |
| 16+50 | 1650.00 | 50.00 | 8.63 | 0.00 | 4.48 | 0.00 | 27.17 | 0.00 | 4.44 | 0.00 | 685.18 | 5.21 | 0.00 | 0.00 | 679.96 |
| 17+00 | 1700.00 | 50.00 | 5.97 | 0.00 | 9.48 | 0.00 | 13.52 | 0.00 | 12.93 | 0.00 | 698.70 | 19.43 | 0.00 | 0.00 | 679.26 |
| 17+50 | 1750.00 | 50.00 | 5.15 | 0.00 | 10.84 | 0.00 | 10.30 | 0.00 | 18.81 | 0.00 | 708.99 | 40.13 | 0.00 | 0.00 | 668.86 |
| 18+00 | 1800.00 | 50.00 | 4.29 | 0.00 | 9.73 | 0.00 | 8.74 | 0.00 | 19.05 | 0.00 | 717.73 | 61.08 | 0.00 | 0.00 | 656.65 |
| 18+50 | 1850.00 | 50.00 | 2.79 | 0.00 | 7.78 | 0.00 | 6.56 | 0.00 | 16.21 | 0.00 | 724.29 | 78.91 | 0.00 | 0.00 | 645.37 |
| 19+00 | 1900.00 | 50.00 | 1.30 | 0.00 | 5.79 | 0.00 | 3.79 | 0.00 | 12.56 | 0.00 | 728.08 | 92.74 | 0.00 | 0.00 | 635.34 |
| 19+06 BK | 1906.46 | 6.46 | 1.44 | 0.00 | 5.65 | 0.00 | 0.33 | 0.00 | 1.37 | 0.00 | 728.40 | 94.24 | 0.00 | 0.00 | 634.16 |
| | | | | | | Column totals | 728.40 | 0.00 | 85.67 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4743
September 14, 2015

9

9

PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4743 | E

**Division 5 EWU**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15+10 AH | 1510.17 | 0.00 | 20.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15+50 | 1550.00 | 39.83 | 20.25 | 0.00 | 0.00 | 0.00 | 29.77 | 0.00 | 0.00 | 0.00 | 29.77 | 0.00 | 0.00 | 0.00 | 29.77 |
| 16+00 | 1600.00 | 50.00 | 20.26 | 0.00 | 0.00 | 0.00 | 37.51 | 0.00 | 0.00 | 0.00 | 67.28 | 0.00 | 0.00 | 0.00 | 67.28 |
| 16+50 | 1650.00 | 50.00 | 19.91 | 0.00 | 0.00 | 0.00 | 37.19 | 0.00 | 0.00 | 0.00 | 104.47 | 0.00 | 0.00 | 0.00 | 104.47 |
| 17+00 | 1700.00 | 50.00 | 18.83 | 0.00 | 0.00 | 0.00 | 35.87 | 0.00 | 0.00 | 0.00 | 140.34 | 0.00 | 0.00 | 0.00 | 140.34 |
| 17+50 | 1750.00 | 50.00 | 17.80 | 0.00 | 0.00 | 0.00 | 33.92 | 0.00 | 0.00 | 0.00 | 174.26 | 0.00 | 0.00 | 0.00 | 174.26 |
| 18+00 | 1800.00 | 50.00 | 16.36 | 0.00 | 0.00 | 0.00 | 31.63 | 0.00 | 0.00 | 0.00 | 205.89 | 0.00 | 0.00 | 0.00 | 205.89 |
| 18+50 | 1850.00 | 50.00 | 10.33 | 0.00 | 0.05 | 0.00 | 24.71 | 0.00 | 0.05 | 0.00 | 230.60 | 0.05 | 0.00 | 0.00 | 230.55 |
| 19+00 | 1900.00 | 50.00 | 4.46 | 0.00 | 0.59 | 0.00 | 13.69 | 0.00 | 0.59 | 0.00 | 244.30 | 0.70 | 0.00 | 0.00 | 243.59 |
| 19+50 | 1950.00 | 50.00 | 1.74 | 0.00 | 1.50 | 0.00 | 5.74 | 0.00 | 1.94 | 0.00 | 250.04 | 2.83 | 0.00 | 0.00 | 247.21 |
| 20+00 | 2000.00 | 50.00 | 0.20 | 0.00 | 2.99 | 0.00 | 1.80 | 0.00 | 4.16 | 0.00 | 251.83 | 7.40 | 0.00 | 0.00 | 244.43 |
| 20+50 | 2050.00 | 50.00 | 0.00 | 0.00 | 4.93 | 0.00 | 0.19 | 0.00 | 7.33 | 0.00 | 252.02 | 15.47 | 0.00 | 0.00 | 236.55 |
| 21+00 | 2100.00 | 50.00 | 0.00 | 0.00 | 7.40 | 0.00 | 0.00 | 0.00 | 11.42 | 0.00 | 252.02 | 28.03 | 0.00 | 0.00 | 223.99 |
| 21+31 BK | 2131.12 | 31.12 | 0.00 | 0.00 | 8.68 | 0.00 | 0.00 | 0.00 | 9.27 | 0.00 | 252.02 | 38.22 | 0.00 | 0.00 | 213.80 |
| | | Column totals | | | | | 252.02 | 0.00 | 34.75 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4744
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:34 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew119 PLOT SCALE : 1:1

**Division 5 EWV**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill Note 4 1.3 | Cumulative Vol (CY) Reduced EBS In Fill Note 5 0.8 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11+00 AH | 1100.00 | 0.00 | 1.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11+50 | 1150.00 | 50.00 | 2.24 | 0.00 | 0.00 | 0.00 | 3.46 | 0.00 | 0.00 | 0.00 | 3.46 | 0.00 | 0.00 | 0.00 | 3.46 |
| 12+00 | 1200.00 | 50.00 | 4.39 | 0.00 | 0.07 | 0.00 | 6.14 | 0.00 | 0.06 | 0.00 | 9.60 | 0.07 | 0.00 | 0.00 | 9.53 |
| 12+50 | 1250.00 | 50.00 | 7.28 | 0.00 | 0.77 | 0.00 | 10.81 | 0.00 | 0.78 | 0.00 | 20.41 | 0.93 | 0.00 | 0.00 | 19.48 |
| 13+00 | 1300.00 | 50.00 | 9.82 | 0.00 | 0.64 | 0.00 | 15.83 | 0.00 | 1.31 | 0.00 | 36.24 | 2.36 | 0.00 | 0.00 | 33.88 |
| 13+50 | 1350.00 | 50.00 | 14.44 | 0.00 | 0.03 | 0.00 | 22.46 | 0.00 | 0.62 | 0.00 | 58.70 | 3.05 | 0.00 | 0.00 | 55.66 |
| 14+00 | 1400.00 | 50.00 | 17.89 | 0.00 | 0.00 | 0.00 | 29.94 | 0.00 | 0.03 | 0.00 | 88.64 | 3.08 | 0.00 | 0.00 | 85.56 |
| 14+50 | 1450.00 | 50.00 | 17.86 | 0.00 | 0.00 | 0.00 | 33.10 | 0.00 | 0.00 | 0.00 | 121.74 | 3.08 | 0.00 | 0.00 | 118.66 |
| 15+00 | 1500.00 | 50.00 | 17.09 | 0.00 | 0.00 | 0.00 | 32.36 | 0.00 | 0.00 | 0.00 | 154.10 | 3.08 | 0.00 | 0.00 | 151.03 |
| 15+50 | 1550.00 | 50.00 | 12.07 | 0.00 | 0.01 | 0.00 | 27.00 | 0.00 | 0.01 | 0.00 | 181.10 | 3.09 | 0.00 | 0.00 | 178.02 |
| 16+00 | 1600.00 | 50.00 | 10.45 | 0.00 | 0.46 | 0.00 | 20.85 | 0.00 | 0.44 | 0.00 | 201.95 | 3.56 | 0.00 | 0.00 | 198.39 |
| 16+50 | 1650.00 | 50.00 | 7.03 | 0.00 | 0.53 | 0.00 | 16.19 | 0.00 | 0.92 | 0.00 | 218.14 | 4.57 | 0.00 | 0.00 | 213.57 |
| 17+00 | 1700.00 | 50.00 | 3.68 | 0.00 | 0.02 | 0.00 | 9.92 | 0.00 | 0.51 | 0.00 | 228.06 | 5.13 | 0.00 | 0.00 | 222.92 |
| 17+29 BK | 1729.20 | 29.20 | 1.50 | 0.00 | 0.00 | 0.00 | 2.80 | 0.00 | 0.01 | 0.00 | 230.86 | 5.15 | 0.00 | 0.00 | 225.71 |
| | | | | | Column totals | | 230.86 | 0.00 | 4.68 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4745
September 14, 2015

**Division 5 ENA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10+28 AH | 1027.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10+50 | 1050.00 | 22.12 | 0.61 | 0.00 | 0.15 | 0.00 | 0.25 | 0.00 | 0.06 | 0.00 | 0.25 | 0.07 | 0.00 | 0.00 | 0.18 |
| 11+00 | 1100.00 | 50.00 | 4.39 | 0.00 | 0.28 | 0.00 | 4.63 | 0.00 | 0.40 | 0.00 | 4.88 | 0.51 | 0.00 | 0.00 | 4.37 |
| 11+50 | 1150.00 | 50.00 | 22.79 | 0.00 | 0.11 | 0.00 | 25.17 | 0.00 | 0.36 | 0.00 | 30.05 | 0.90 | 0.00 | 0.00 | 29.14 |
| 12+00 | 1200.00 | 50.00 | 4.67 | 0.00 | 7.04 | 0.00 | 25.43 | 0.00 | 6.62 | 0.00 | 55.47 | 8.19 | 0.00 | 0.00 | 47.29 |
| 12+50 | 1250.00 | 50.00 | 0.00 | 0.00 | 57.52 | 0.00 | 4.32 | 0.00 | 59.78 | 0.00 | 59.80 | 73.94 | 0.00 | 0.00 | -14.14 |
| 13+00 | 1300.00 | 50.00 | 0.00 | 0.00 | 121.38 | 0.00 | 0.00 | 0.00 | 165.65 | 0.00 | 59.80 | 256.15 | 0.00 | 0.00 | -196.36 |
| 13+50 | 1350.00 | 50.00 | 127.89 | 0.00 | 71.93 | 0.00 | 118.42 | 0.00 | 178.99 | 0.00 | 178.21 | 453.04 | 0.00 | 0.00 | -274.83 |
| 14+00 | 1400.00 | 50.00 | 106.24 | 0.00 | 44.54 | 0.00 | 216.79 | 0.00 | 107.84 | 0.00 | 395.00 | 571.67 | 0.00 | 0.00 | -176.67 |
| 14+50 | 1450.00 | 50.00 | 148.39 | 0.00 | 15.74 | 0.00 | 235.77 | 0.00 | 55.81 | 0.00 | 630.77 | 633.07 | 0.00 | 0.00 | -2.30 |
| 15+00 | 1500.00 | 50.00 | 298.45 | 0.00 | 0.00 | 0.00 | 413.74 | 0.00 | 14.57 | 0.00 | 1044.51 | 649.10 | 0.00 | 0.00 | 395.41 |
| 15+50 | 1550.00 | 50.00 | 334.90 | 0.00 | 0.00 | 0.00 | 586.44 | 0.00 | 0.00 | 0.00 | 1630.94 | 649.10 | 0.00 | 0.00 | 981.85 |
| 16+00 | 1600.00 | 50.00 | 291.81 | 0.00 | 0.00 | 0.00 | 580.29 | 0.00 | 0.00 | 0.00 | 2211.23 | 649.10 | 0.00 | 0.00 | 1562.13 |
| 16+50 | 1650.00 | 50.00 | 263.48 | 0.00 | 1.67 | 0.00 | 514.16 | 0.00 | 1.55 | 0.00 | 2725.39 | 650.80 | 0.00 | 0.00 | 2074.59 |
| 17+00 | 1700.00 | 50.00 | 245.46 | 0.00 | 0.08 | 0.00 | 471.24 | 0.00 | 1.62 | 0.00 | 3196.63 | 652.58 | 0.00 | 0.00 | 2544.05 |
| 17+50 | 1750.00 | 50.00 | 157.08 | 0.00 | 0.00 | 0.00 | 372.72 | 0.00 | 0.07 | 0.00 | 3569.35 | 652.66 | 0.00 | 0.00 | 2916.69 |
| 18+00 | 1800.00 | 50.00 | 61.40 | 0.00 | 0.00 | 0.00 | 202.30 | 0.00 | 0.00 | 0.00 | 3771.65 | 652.66 | 0.00 | 0.00 | 3118.99 |
| 18+50 | 1850.00 | 50.00 | 19.46 | 0.00 | 0.00 | 0.00 | 74.87 | 0.00 | 0.00 | 0.00 | 3846.52 | 652.66 | 0.00 | 0.00 | 3193.86 |
| 19+00 | 1900.00 | 50.00 | 11.73 | 0.00 | 0.00 | 0.00 | 28.88 | 0.00 | 0.00 | 0.00 | 3875.40 | 652.66 | 0.00 | 0.00 | 3222.74 |
| 19+50 | 1950.00 | 50.00 | 8.04 | 0.00 | 0.46 | 0.00 | 18.31 | 0.00 | 0.43 | 0.00 | 3893.70 | 653.13 | 0.00 | 0.00 | 3240.57 |
| 19+67 BK | 1967.44 | 17.44 | 7.70 | 0.00 | 1.37 | 0.00 | 5.08 | 0.00 | 0.59 | 0.00 | 3898.79 | 653.78 | 0.00 | 0.00 | 3245.01 |
| | | Column totals | | | | | 3898.79 | 0.00 | 594.35 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4746
September 14, 2015

9

9

PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4746 | E

**Division 5 SWD**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill Note 4 (1.3) | Cumulative Vol (CY) Reduced EBS In Fill Note 5 (0.8) | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11+00 AH | 1100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11+50 | 1150.00 | 50.00 | 2.33 | 0.00 | 1.59 | 0.00 | 2.16 | 0.00 | 1.47 | 0.00 | 2.16 | 1.62 | 0.00 | 0.00 | 0.54 |
| 12+00 | 1200.00 | 50.00 | 3.14 | 0.00 | 4.68 | 0.00 | 5.06 | 0.00 | 5.81 | 0.00 | 7.22 | 8.01 | 0.00 | 0.00 | -0.78 |
| 12+50 | 1250.00 | 50.00 | 3.05 | 0.00 | 9.49 | 0.00 | 5.73 | 0.00 | 13.12 | 0.00 | 12.95 | 22.44 | 0.00 | 0.00 | -9.48 |
| 13+00 | 1300.00 | 50.00 | 2.97 | 0.00 | 14.22 | 0.00 | 5.57 | 0.00 | 21.95 | 0.00 | 18.53 | 46.59 | 0.00 | 0.00 | -28.06 |
| 13+50 | 1350.00 | 50.00 | 4.53 | 0.00 | 9.75 | 0.00 | 6.94 | 0.00 | 22.19 | 0.00 | 25.47 | 71.00 | 0.00 | 0.00 | -45.53 |
| 14+00 | 1400.00 | 50.00 | 9.37 | 0.00 | 3.35 | 0.00 | 12.87 | 0.00 | 12.13 | 0.00 | 38.34 | 84.34 | 0.00 | 0.00 | -46.00 |
| 14+50 | 1450.00 | 50.00 | 10.85 | 0.00 | 2.26 | 0.00 | 18.72 | 0.00 | 5.19 | 0.00 | 57.06 | 90.06 | 0.00 | 0.00 | -32.99 |
| 15+00 | 1500.00 | 50.00 | 13.69 | 0.00 | 0.54 | 0.00 | 22.72 | 0.00 | 2.59 | 0.00 | 79.79 | 92.91 | 0.00 | 0.00 | -13.12 |
| 15+47 BK | 1546.67 | 46.67 | 22.05 | 0.00 | 0.00 | 0.00 | 30.89 | 0.00 | 0.47 | 0.00 | 110.68 | 93.42 | 0.00 | 0.00 | 17.25 |
| | | Column totals | | | | | 110.68 | 0.00 | 84.93 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4747
September 14, 2015

9

9

PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4747 | E

**Division 5 SW CORE POND (PSW)**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11+15 AH | 1114.50 | 0.00 | 9.05 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11+50 | 1150.00 | 35.50 | 1665.24 | 0.00 | 0.47 | 0.00 | 1100.69 | 0.00 | 0.32 | 0.00 | 1100.69 | 0.35 | 0.00 | 0.00 | 1100.34 |
| 12+00 | 1200.00 | 50.00 | 4405.58 | 0.00 | 0.00 | 0.00 | 5621.13 | 0.00 | 0.44 | 0.00 | 6721.82 | 0.83 | 0.00 | 0.00 | 6720.99 |
| 12+50 | 1250.00 | 50.00 | 3644.76 | 0.00 | 0.00 | 0.00 | 7454.02 | 0.00 | 0.00 | 0.00 | 14175.84 | 0.83 | 0.00 | 0.00 | 14175.01 |
| 13+00 | 1300.00 | 50.00 | 913.29 | 0.00 | 0.00 | 0.00 | 4220.42 | 0.00 | 0.00 | 0.00 | 18396.26 | 0.83 | 0.00 | 0.00 | 18395.43 |
| 13+30 BK | 1330.00 | 30.00 | 16.36 | 0.00 | 0.01 | 0.00 | 516.47 | 0.00 | 0.01 | 0.00 | 18912.73 | 0.83 | 0.00 | 0.00 | 18911.90 |
| | | Column totals | | | | | 18912.73 | 0.00 | 0.76 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4748
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:34 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew123 PLOT SCALE : 1:1

**Division 6 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 289+95 AH | 28995.00 | 0.00 | 0.00 | 0.00 | 3456.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 290+00 | 29000.00 | 5.00 | 0.00 | 0.00 | 3664.56 | 0.00 | 0.00 | 0.00 | 659.39 | 0.00 | 0.00 | 725.33 | 0.00 | 0.00 | -725.33 |
| 290+50 | 29050.00 | 50.00 | 0.00 | 0.00 | 5470.54 | 0.00 | 0.00 | 0.00 | 8458.43 | 0.00 | 0.00 | 10029.60 | 0.00 | 0.00 | -10029.60 |
| 291+00 | 29100.00 | 50.00 | 0.00 | 0.00 | 6855.76 | 0.00 | 0.00 | 0.00 | 11413.24 | 0.00 | 0.00 | 22584.16 | 0.00 | 0.00 | -22584.16 |
| 291+50 | 29150.00 | 50.00 | 0.00 | 0.00 | 5207.31 | 0.00 | 0.00 | 0.00 | 11169.51 | 0.00 | 0.00 | 34870.62 | 0.00 | 0.00 | -34870.62 |
| 292+00 | 29200.00 | 50.00 | 0.00 | 0.00 | 3364.85 | 0.00 | 0.00 | 0.00 | 7937.19 | 0.00 | 0.00 | 43601.52 | 0.00 | 0.00 | -43601.52 |
| 292+14 BK | 29214.13 | 14.13 | 0.00 | 0.00 | 3041.40 | 0.00 | 0.00 | 0.00 | 1676.30 | 0.00 | 0.00 | 45445.46 | 0.00 | 0.00 | -45445.46 |
| | | | | | Column totals | | 0.00 | 0.00 | 41314.05 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4749
September 14, 2015


9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:34 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew124 PLOT SCALE : 1:1

**Division 6 USH 45 SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 192+00 AH | 19200.00 | 0.00 | 30.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 192+50 | 19250.00 | 50.00 | 31.94 | 0.00 | 2.32 | 0.00 | 57.82 | 0.00 | 2.15 | 0.00 | 57.82 | 2.36 | 0.00 | 0.00 | 55.46 |
| 193+00 | 19300.00 | 50.00 | 28.02 | 0.00 | 7.77 | 0.00 | 55.52 | 0.00 | 9.34 | 0.00 | 113.34 | 12.64 | 0.00 | 0.00 | 100.70 |
| 193+50 | 19350.00 | 50.00 | 26.33 | 0.00 | 10.71 | 0.00 | 50.32 | 0.00 | 17.11 | 0.00 | 163.67 | 31.46 | 0.00 | 0.00 | 132.20 |
| 194+00 | 19400.00 | 50.00 | 26.82 | 0.00 | 8.90 | 0.00 | 49.21 | 0.00 | 18.16 | 0.00 | 212.88 | 51.44 | 0.00 | 0.00 | 161.44 |
| 194+50 | 19450.00 | 50.00 | 27.24 | 0.00 | 7.14 | 0.00 | 50.06 | 0.00 | 14.85 | 0.00 | 262.94 | 67.77 | 0.00 | 0.00 | 195.16 |
| 195+00 | 19500.00 | 50.00 | 27.28 | 0.00 | 8.27 | 0.00 | 50.48 | 0.00 | 14.27 | 0.00 | 313.42 | 83.47 | 0.00 | 0.00 | 229.95 |
| 195+50 | 19550.00 | 50.00 | 27.51 | 0.00 | 11.32 | 0.00 | 50.73 | 0.00 | 18.14 | 0.00 | 364.15 | 103.42 | 0.00 | 0.00 | 260.73 |
| 196+00 | 19600.00 | 50.00 | 29.91 | 0.00 | 13.81 | 0.00 | 53.17 | 0.00 | 23.27 | 0.00 | 417.31 | 129.02 | 0.00 | 0.00 | 288.30 |
| 196+50 | 19650.00 | 50.00 | 29.97 | 0.00 | 0.00 | 0.00 | 55.44 | 0.00 | 12.79 | 0.00 | 472.76 | 143.08 | 0.00 | 0.00 | 329.68 |
| 196+80 BK | 19680.00 | 30.00 | 0.00 | 0.00 | 0.00 | 0.00 | 16.65 | 0.00 | 0.00 | 0.00 | 489.41 | 143.08 | 0.00 | 0.00 | 346.33 |
| 197+26 AH | 19725.85 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 197+50 | 19750.00 | 24.15 | 17.08 | 0.00 | 0.00 | 0.00 | 7.64 | 0.00 | 0.00 | 0.00 | 7.64 | 0.00 | 0.00 | 0.00 | 7.64 |
| 198+00 | 19800.00 | 50.00 | 33.35 | 0.00 | 0.00 | 0.00 | 46.69 | 0.00 | 0.00 | 0.00 | 54.33 | 0.00 | 0.00 | 0.00 | 54.33 |
| 198+50 | 19850.00 | 50.00 | 83.61 | 0.00 | 0.00 | 0.00 | 108.30 | 0.00 | 0.00 | 0.00 | 162.63 | 0.00 | 0.00 | 0.00 | 162.63 |
| 199+00 | 19900.00 | 50.00 | 132.96 | 0.00 | 0.00 | 0.00 | 200.53 | 0.00 | 0.00 | 0.00 | 363.16 | 0.00 | 0.00 | 0.00 | 363.16 |
| 199+50 | 19950.00 | 50.00 | 166.90 | 0.00 | 0.00 | 0.00 | 277.65 | 0.00 | 0.00 | 0.00 | 640.81 | 0.00 | 0.00 | 0.00 | 640.81 |
| 200+00 | 20000.00 | 50.00 | 181.30 | 0.00 | 0.00 | 0.00 | 322.41 | 0.00 | 0.00 | 0.00 | 963.21 | 0.00 | 0.00 | 0.00 | 963.21 |
| 200+50 | 20050.00 | 50.00 | 184.41 | 0.00 | 0.00 | 0.00 | 338.62 | 0.00 | 0.00 | 0.00 | 1301.83 | 0.00 | 0.00 | 0.00 | 1301.83 |
| 201+00 | 20100.00 | 50.00 | 190.18 | 0.00 | 0.00 | 0.00 | 346.84 | 0.00 | 0.00 | 0.00 | 1648.68 | 0.00 | 0.00 | 0.00 | 1648.68 |
| 201+50 | 20150.00 | 50.00 | 168.11 | 0.00 | 0.00 | 0.00 | 331.75 | 0.00 | 0.00 | 0.00 | 1980.43 | 0.00 | 0.00 | 0.00 | 1980.43 |
| 202+00 | 20200.00 | 50.00 | 112.98 | 0.00 | 0.00 | 0.00 | 260.27 | 0.00 | 0.00 | 0.00 | 2240.69 | 0.00 | 0.00 | 0.00 | 2240.69 |
| 202+50 | 20250.00 | 50.00 | 39.33 | 0.00 | 0.00 | 0.00 | 141.03 | 0.00 | 0.00 | 0.00 | 2381.72 | 0.00 | 0.00 | 0.00 | 2381.72 |
| 203+00 | 20300.00 | 50.00 | 39.15 | 0.00 | 0.00 | 0.00 | 72.67 | 0.00 | 0.00 | 0.00 | 2454.39 | 0.00 | 0.00 | 0.00 | 2454.39 |
| 203+50 | 20350.00 | 50.00 | 116.44 | 0.00 | 0.00 | 0.00 | 144.06 | 0.00 | 0.00 | 0.00 | 2598.45 | 0.00 | 0.00 | 0.00 | 2598.45 |
| 204+00 | 20400.00 | 50.00 | 69.35 | 0.00 | 0.00 | 0.00 | 172.03 | 0.00 | 0.00 | 0.00 | 2770.48 | 0.00 | 0.00 | 0.00 | 2770.48 |
| 204+50 | 20450.00 | 50.00 | 67.73 | 0.00 | 0.18 | 0.00 | 126.93 | 0.00 | 0.17 | 0.00 | 2897.41 | 0.18 | 0.00 | 0.00 | 2897.22 |
| 205+00 | 20500.00 | 50.00 | 69.52 | 0.00 | 2.98 | 0.00 | 127.08 | 0.00 | 2.93 | 0.00 | 3024.49 | 3.40 | 0.00 | 0.00 | 3021.09 |
| 205+50 | 20550.00 | 50.00 | 74.28 | 0.00 | 10.06 | 0.00 | 133.15 | 0.00 | 12.07 | 0.00 | 3157.64 | 16.68 | 0.00 | 0.00 | 3140.96 |
| 206+00 | 20600.00 | 50.00 | 74.52 | 0.00 | 17.56 | 0.00 | 137.78 | 0.00 | 25.57 | 0.00 | 3295.42 | 44.81 | 0.00 | 0.00 | 3250.60 |
| 206+50 | 20650.00 | 50.00 | 74.83 | 0.00 | 21.82 | 0.00 | 138.29 | 0.00 | 36.46 | 0.00 | 3433.70 | 84.92 | 0.00 | 0.00 | 3348.78 |
| 206+98 | 20698.00 | 48.00 | 69.16 | 0.00 | 19.98 | 0.00 | 127.99 | 0.00 | 37.16 | 0.00 | 3561.69 | 125.80 | 0.00 | 0.00 | 3435.90 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4750
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 6 USH 45 SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 206+98 | 20698.00 | 0.00 | 82.68 | 0.00 | 20.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3561.69 | 125.80 | 0.00 | 0.00 | 3435.90 |
| 207+00 | 20700.00 | 2.00 | 128.01 | | 24.71 | 0.00 | 7.80 | 0.00 | 1.66 | 0.00 | 3569.50 | 127.62 | 0.00 | 0.00 | 3441.88 |
| 207+50 | 20750.00 | 50.00 | 102.05 | 0.00 | 41.76 | 0.00 | 213.02 | 0.00 | 61.55 | 0.00 | 3782.52 | 195.32 | 0.00 | 0.00 | 3587.20 |
| 208+00 | 20800.00 | 50.00 | 98.00 | 0.00 | 25.96 | 0.00 | 185.23 | 0.00 | 62.70 | 0.00 | 3967.75 | 264.29 | 0.00 | 0.00 | 3703.46 |
| 208+05 | 20805.00 | 5.00 | 77.94 | 0.00 | 20.08 | 0.00 | 16.29 | 0.00 | 4.26 | 0.00 | 3984.04 | 268.98 | 0.00 | 0.00 | 3715.06 |
| 208+05 | 20805.00 | 0.00 | 47.53 | 0.00 | 15.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3984.04 | 268.98 | 0.00 | 0.00 | 3715.06 |
| 208+50 | 20850.00 | 45.00 | 88.36 | 0.00 | 3.27 | 0.00 | 113.24 | 0.00 | 16.02 | 0.00 | 4097.28 | 286.60 | 0.00 | 0.00 | 3810.68 |
| 209+00 | 20900.00 | 50.00 | 94.16 | 0.00 | 2.71 | 0.00 | 169.00 | 0.00 | 5.54 | 0.00 | 4266.28 | 292.69 | 0.00 | 0.00 | 3973.59 |
| 209+50 | 20950.00 | 50.00 | 68.88 | 0.00 | 1.41 | 0.00 | 150.96 | 0.00 | 3.81 | 0.00 | 4417.24 | 296.89 | 0.00 | 0.00 | 4120.36 |
| 210+00 | 21000.00 | 50.00 | 69.92 | 0.00 | 0.00 | 0.00 | 128.52 | 0.00 | 1.31 | 0.00 | 4545.76 | 298.32 | 0.00 | 0.00 | 4247.44 |
| 210+50 | 21050.00 | 50.00 | 72.97 | 0.00 | 0.00 | 0.00 | 132.31 | 0.00 | 0.00 | 0.00 | 4678.07 | 298.32 | 0.00 | 0.00 | 4379.74 |
| 210+63 | 21063.00 | 13.00 | 75.17 | 0.00 | 0.00 | 0.00 | 35.66 | 0.00 | 0.00 | 0.00 | 4713.73 | 298.32 | 0.00 | 0.00 | 4415.41 |
| 210+63 | 21063.00 | 0.00 | 30.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4713.73 | 298.32 | 0.00 | 0.00 | 4415.41 |
| 211+00 | 21100.00 | 37.00 | 31.71 | 0.00 | 0.00 | 0.00 | 42.70 | 0.00 | 0.00 | 0.00 | 4756.43 | 298.32 | 0.00 | 0.00 | 4458.11 |
| 211+00 | 21100.00 | 0.00 | 61.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4756.43 | 298.32 | 0.00 | 0.00 | 4458.11 |
| 211+50 | 21150.00 | 50.00 | 59.44 | 0.00 | 0.00 | 0.00 | 112.30 | 0.00 | 0.00 | 0.00 | 4868.73 | 298.32 | 0.00 | 0.00 | 4570.40 |
| 212+00 | 21200.00 | 50.00 | 57.72 | 0.00 | 0.00 | 0.00 | 108.48 | 0.00 | 0.00 | 0.00 | 4977.21 | 298.32 | 0.00 | 0.00 | 4678.89 |
| 212+50 | 21250.00 | 50.00 | 52.95 | 0.00 | 0.00 | 0.00 | 102.47 | 0.00 | 0.00 | 0.00 | 5079.68 | 298.32 | 0.00 | 0.00 | 4781.36 |
| 212+63 | 21262.62 | 12.62 | 161.45 | 0.00 | 0.00 | 0.00 | 50.11 | 0.00 | 0.00 | 0.00 | 5129.79 | 298.32 | 0.00 | 0.00 | 4831.46 |
| 212+63 | 21262.62 | 0.00 | 302.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5129.79 | 298.32 | 0.00 | 0.00 | 4831.46 |
| 213+00 | 21300.00 | 37.38 | 423.13 | 0.00 | 0.00 | 0.00 | 502.10 | 0.00 | 0.00 | 0.00 | 5631.88 | 298.32 | 0.00 | 0.00 | 5333.56 |
| 213+50 | 21350.00 | 50.00 | 460.61 | 0.00 | 0.00 | 0.00 | 818.28 | 0.00 | 0.00 | 0.00 | 6450.16 | 298.32 | 0.00 | 0.00 | 6151.84 |
| 214+00 | 21400.00 | 50.00 | 439.97 | 0.00 | 0.00 | 0.00 | 833.87 | 0.00 | 0.00 | 0.00 | 7284.03 | 298.32 | 0.00 | 0.00 | 6985.71 |
| 214+00 | 21400.00 | 0.00 | 455.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7284.03 | 298.32 | 0.00 | 0.00 | 6985.71 |
| 214+50 | 21450.00 | 50.00 | 378.70 | 0.00 | 0.00 | 0.00 | 772.22 | 0.00 | 0.00 | 0.00 | 8056.25 | 298.32 | 0.00 | 0.00 | 7757.93 |
| 215+00 | 21500.00 | 50.00 | 297.92 | 0.00 | 0.00 | 0.00 | 626.50 | 0.00 | 0.00 | 0.00 | 8682.75 | 298.32 | 0.00 | 0.00 | 8384.43 |
| 215+50 | 21550.00 | 50.00 | 222.20 | 0.00 | 1.44 | 0.00 | 481.59 | 0.00 | 1.33 | 0.00 | 9164.35 | 299.79 | 0.00 | 0.00 | 8864.56 |
| 216+00 | 21600.00 | 50.00 | 142.16 | 0.00 | 4.24 | 0.00 | 337.37 | 0.00 | 5.26 | 0.00 | 9501.72 | 305.58 | 0.00 | 0.00 | 9196.14 |

1

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4751
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 6 USH 45 SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 216+00 | 21600.00 | 0.00 | 145.15 | 0.00 | 4.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9501.72 | 305.58 | 0.00 | 0.00 | 9196.14 |
| 216+50 | 21650.00 | 50.00 | 96.56 | 0.00 | 8.76 | 0.00 | 223.81 | 0.00 | 11.83 | 0.00 | 9725.52 | 318.59 | 0.00 | 0.00 | 9406.93 |
| 217+00 | 21700.00 | 50.00 | 56.02 | 0.00 | 20.93 | 0.00 | 141.28 | 0.00 | 27.49 | 0.00 | 9866.80 | 348.83 | 0.00 | 0.00 | 9517.97 |
| 217+50 | 21750.00 | 50.00 | 22.23 | 0.00 | 48.21 | 0.00 | 72.45 | 0.00 | 64.02 | 0.00 | 9939.25 | 419.25 | 0.00 | 0.00 | 9520.00 |
| 218+00 | 21800.00 | 50.00 | 3.66 | 0.00 | 98.52 | 0.00 | 23.97 | 0.00 | 135.86 | 0.00 | 9963.23 | 568.70 | 0.00 | 0.00 | 9394.53 |
| 218+50 | 21850.00 | 50.00 | 4.83 | 0.00 | 177.02 | 0.00 | 7.86 | 0.00 | 255.13 | 0.00 | 9971.09 | 849.34 | 0.00 | 0.00 | 9121.75 |
| 219+00 | 21900.00 | 50.00 | 3.56 | 0.00 | 277.49 | 0.00 | 7.77 | 0.00 | 420.84 | 0.00 | 9978.86 | 1312.27 | 0.00 | 0.00 | 8666.59 |
| 219+50 | 21950.00 | 50.00 | 9.01 | 0.00 | 396.48 | 0.00 | 11.64 | 0.00 | 624.05 | 0.00 | 9990.49 | 1998.72 | 0.00 | 0.00 | 7991.78 |
| 220+00 | 22000.00 | 50.00 | 8.80 | 0.00 | 482.32 | 0.00 | 16.49 | 0.00 | 813.70 | 0.00 | 10006.99 | 2893.79 | 0.00 | 0.00 | 7113.19 |
| 220+50 | 22050.00 | 50.00 | 6.57 | 0.00 | 538.97 | 0.00 | 14.23 | 0.00 | 945.64 | 0.00 | 10021.22 | 3934.00 | 0.00 | 0.00 | 6087.22 |
| 221+00 | 22100.00 | 50.00 | 5.30 | 0.00 | 601.25 | 0.00 | 10.99 | 0.00 | 1055.76 | 0.00 | 10032.21 | 5095.33 | 0.00 | 0.00 | 4936.88 |
| 221+50 | 22150.00 | 50.00 | 1.67 | 0.00 | 659.58 | 0.00 | 6.45 | 0.00 | 1167.44 | 0.00 | 10038.66 | 6379.51 | 0.00 | 0.00 | 3659.15 |
| 222+00 | 22200.00 | 50.00 | 0.00 | 0.00 | 488.66 | 0.00 | 1.55 | 0.00 | 1063.19 | 0.00 | 10040.21 | 7549.01 | 0.00 | 0.00 | 2491.19 |
| 222+50 | 22250.00 | 50.00 | 0.00 | 0.00 | 510.28 | 0.00 | 0.00 | 0.00 | 924.94 | 0.00 | 10040.21 | 8566.45 | 0.00 | 0.00 | 1473.76 |
| 223+00 | 22300.00 | 50.00 | 0.00 | 0.00 | 501.07 | 0.00 | 0.00 | 0.00 | 936.44 | 0.00 | 10040.21 | 9596.53 | 0.00 | 0.00 | 443.68 |
| 223+50 | 22350.00 | 50.00 | 0.00 | 0.00 | 501.65 | 0.00 | 0.00 | 0.00 | 928.44 | 0.00 | 10040.21 | 10617.82 | 0.00 | 0.00 | -577.61 |
| 224+00 | 22400.00 | 50.00 | 0.00 | 0.00 | 514.56 | 0.00 | 0.00 | 0.00 | 940.94 | 0.00 | 10040.21 | 11652.85 | 0.00 | 0.00 | -1612.64 |
| 224+50 | 22450.00 | 50.00 | 0.00 | 0.00 | 527.97 | 0.00 | 0.00 | 0.00 | 965.31 | 0.00 | 10040.21 | 12714.69 | 0.00 | 0.00 | -2674.48 |
| 225+00 | 22500.00 | 50.00 | 0.00 | 0.00 | 525.72 | 0.00 | 0.00 | 0.00 | 975.64 | 0.00 | 10040.21 | 13787.89 | 0.00 | 0.00 | -3747.68 |
| 225+50 | 22550.00 | 50.00 | 0.00 | 0.00 | 475.28 | 0.00 | 0.00 | 0.00 | 926.85 | 0.00 | 10040.21 | 14807.43 | 0.00 | 0.00 | -4767.22 |
| 226+00 | 22600.00 | 50.00 | 0.00 | 0.00 | 396.67 | 0.00 | 0.00 | 0.00 | 807.36 | 0.00 | 10040.21 | 15695.52 | 0.00 | 0.00 | -5655.31 |
| 226+50 | 22650.00 | 50.00 | 0.00 | 0.00 | 389.24 | 0.00 | 0.00 | 0.00 | 727.69 | 0.00 | 10040.21 | 16495.99 | 0.00 | 0.00 | -6455.78 |
| 227+00 | 22700.00 | 50.00 | 0.00 | 0.00 | 331.74 | 0.00 | 0.00 | 0.00 | 667.57 | 0.00 | 10040.21 | 17230.32 | 0.00 | 0.00 | -7190.11 |
| 227+50 | 22750.00 | 50.00 | 0.00 | 0.00 | 279.45 | 0.00 | 0.00 | 0.00 | 565.92 | 0.00 | 10040.21 | 17852.83 | 0.00 | 0.00 | -7812.62 |
| 228+00 | 22800.00 | 50.00 | 0.74 | 0.00 | 257.83 | 0.00 | 0.69 | 0.00 | 497.48 | 0.00 | 10040.89 | 18400.06 | 0.00 | 0.00 | -8359.16 |
| 228+50 | 22850.00 | 50.00 | 11.76 | 0.00 | 221.52 | 0.00 | 11.57 | 0.00 | 443.84 | 0.00 | 10052.47 | 18888.28 | 0.00 | 0.00 | -8835.82 |
| 228+62 | 22862.49 | 12.49 | 27.91 | 0.00 | 0.16 | 0.00 | 9.18 | 0.00 | 51.27 | 0.00 | 10061.64 | 18944.68 | 0.00 | 0.00 | -8883.04 |
| 228+76 BK | 22875.79 | 13.30 | 0.00 | 0.00 | 0.00 | 0.00 | 6.87 | 0.00 | 0.04 | 0.00 | 10068.52 | 18944.73 | 0.00 | 0.00 | -8876.21 |

1

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4752
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

Addendum No. 03
ID 1060-33-81
Revised Sheet 4753
September 14, 2015

(CONTINUED)

**Division 6 USH 45 SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 230+65 AH | 23064.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 230+76 | 23076.39 | 11.64 | 110.81 | 0.00 | 1.44 | 0.00 | 23.89 | 0.00 | 0.31 | 0.00 | 23.89 | 0.34 | 0.00 | 0.00 | 23.54 |
| 231+00 | 23100.00 | 23.61 | 53.67 | 0.00 | 16.68 | 0.00 | 71.91 | 0.00 | 7.92 | 0.00 | 95.80 | 9.06 | 0.00 | 0.00 | 86.74 |
| 231+50 | 23150.00 | 50.00 | 5.53 | 0.00 | 259.46 | 0.00 | 54.81 | 0.00 | 255.69 | 0.00 | 150.61 | 290.31 | 0.00 | 0.00 | -139.70 |
| 232+00 | 23200.00 | 50.00 | 0.00 | 0.00 | 325.78 | 0.00 | 5.12 | 0.00 | 541.89 | 0.00 | 155.74 | 886.39 | 0.00 | 0.00 | -730.65 |
| 232+50 | 23250.00 | 50.00 | 0.00 | 0.00 | 383.39 | 0.00 | 0.00 | 0.00 | 656.64 | 0.00 | 155.74 | 1608.69 | 0.00 | 0.00 | -1452.96 |
| 233+00 | 23300.00 | 50.00 | 0.00 | 0.00 | 428.93 | 0.00 | 0.00 | 0.00 | 752.15 | 0.00 | 155.74 | 2436.05 | 0.00 | 0.00 | -2280.32 |
| 233+50 | 23350.00 | 50.00 | 0.00 | 0.00 | 473.47 | 0.00 | 0.00 | 0.00 | 835.56 | 0.00 | 155.74 | 3355.16 | 0.00 | 0.00 | -3199.43 |
| 234+00 | 23400.00 | 50.00 | 0.00 | 0.00 | 528.23 | 0.00 | 0.00 | 0.00 | 927.50 | 0.00 | 155.74 | 4375.41 | 0.00 | 0.00 | -4219.68 |
| 234+50 | 23450.00 | 50.00 | 0.00 | 0.00 | 552.60 | 0.00 | 0.00 | 0.00 | 1000.77 | 0.00 | 155.74 | 5476.26 | 0.00 | 0.00 | -5320.52 |
| 235+00 | 23500.00 | 50.00 | 0.00 | 0.00 | 554.18 | 0.00 | 0.00 | 0.00 | 1024.80 | 0.00 | 155.74 | 6603.54 | 0.00 | 0.00 | -6447.80 |
| 235+50 | 23550.00 | 50.00 | 0.15 | 0.00 | 547.10 | 0.00 | 0.14 | 0.00 | 1019.70 | 0.00 | 155.87 | 7725.21 | 0.00 | 0.00 | -7569.34 |
| 236+00 | 23600.00 | 50.00 | 0.28 | 0.00 | 587.06 | 0.00 | 0.40 | 0.00 | 1050.15 | 0.00 | 156.27 | 8880.37 | 0.00 | 0.00 | -8724.10 |
| 236+50 | 23650.00 | 50.00 | 1.58 | 0.00 | 573.54 | 0.00 | 1.72 | 0.00 | 1074.63 | 0.00 | 157.99 | 10062.47 | 0.00 | 0.00 | -9904.47 |
| 237+00 | 23700.00 | 50.00 | 5.87 | 0.00 | 562.04 | 0.00 | 6.90 | 0.00 | 1051.46 | 0.00 | 164.89 | 11219.07 | 0.00 | 0.00 | -11054.18 |
| 237+50 | 23750.00 | 50.00 | 0.00 | 0.00 | 558.67 | 0.00 | 5.44 | 0.00 | 1037.69 | 0.00 | 170.33 | 12360.54 | 0.00 | 0.00 | -12190.21 |
| 238+00 | 23800.00 | 50.00 | 0.00 | 0.00 | 558.03 | 0.00 | 0.00 | 0.00 | 1033.98 | 0.00 | 170.33 | 13497.92 | 0.00 | 0.00 | -13327.59 |
| 238+48 | 23848.00 | 48.00 | 0.00 | 0.00 | 533.64 | 0.00 | 0.00 | 0.00 | 970.37 | 0.00 | 170.33 | 14565.33 | 0.00 | 0.00 | -14395.00 |
| 238+48 | 23848.00 | 0.00 | 0.00 | 0.00 | 373.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 170.33 | 14565.33 | 0.00 | 0.00 | -14395.00 |
| 238+50 | 23850.00 | 2.00 | 0.00 | 0.00 | 372.24 | 0.00 | 0.00 | 0.00 | 27.61 | 0.00 | 170.33 | 14595.70 | 0.00 | 0.00 | -14425.38 |
| 239+00 | 23900.00 | 50.00 | 0.00 | 0.00 | 335.97 | 0.00 | 0.00 | 0.00 | 655.75 | 0.00 | 170.33 | 15317.03 | 0.00 | 0.00 | -15146.70 |
| 239+50 | 23950.00 | 50.00 | 0.00 | 0.00 | 294.59 | 0.00 | 0.00 | 0.00 | 583.85 | 0.00 | 170.33 | 15959.27 | 0.00 | 0.00 | -15788.94 |
| 240+00 | 24000.00 | 50.00 | 0.00 | 0.00 | 248.62 | 0.00 | 0.00 | 0.00 | 502.97 | 0.00 | 170.33 | 16512.54 | 0.00 | 0.00 | -16342.21 |
| 240+50 | 24050.00 | 50.00 | 0.00 | 0.00 | 192.18 | 0.00 | 0.00 | 0.00 | 408.15 | 0.00 | 170.33 | 16961.50 | 0.00 | 0.00 | -16791.17 |
| 241+00 | 24100.00 | 50.00 | 0.00 | 0.00 | 129.87 | 0.00 | 0.00 | 0.00 | 298.19 | 0.00 | 170.33 | 17289.51 | 0.00 | 0.00 | -17119.19 |
| 241+50 | 24150.00 | 50.00 | 3.17 | 0.00 | 78.53 | 0.00 | 2.94 | 0.00 | 192.96 | 0.00 | 173.26 | 17501.77 | 0.00 | 0.00 | -17328.51 |
| 241+87 | 24187.00 | 37.00 | 10.86 | 0.00 | 48.64 | 0.00 | 9.61 | 0.00 | 87.14 | 0.00 | 182.88 | 17597.62 | 0.00 | 0.00 | -17414.74 |
| 241+87 | 24187.00 | 0.00 | 10.89 | 0.00 | 58.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 182.88 | 17597.62 | 0.00 | 0.00 | -17414.74 |
| 242+00 | 24200.00 | 13.00 | 15.02 | 0.00 | 48.81 | 0.00 | 6.24 | 0.00 | 25.88 | 0.00 | 189.11 | 17626.09 | 0.00 | 0.00 | -17436.98 |
| 242+50 | 24250.00 | 50.00 | 30.43 | 0.00 | 15.68 | 0.00 | 42.08 | 0.00 | 59.71 | 0.00 | 231.20 | 17691.78 | 0.00 | 0.00 | -17460.58 |
| 243+00 | 24300.00 | 50.00 | 69.33 | 0.00 | 0.86 | 0.00 | 92.37 | 0.00 | 15.31 | 0.00 | 323.57 | 17708.62 | 0.00 | 0.00 | -17385.06 |
| 243+50 | 24350.00 | 50.00 | 118.95 | 0.00 | 0.00 | 0.00 | 174.33 | 0.00 | 0.80 | 0.00 | 497.90 | 17709.50 | 0.00 | 0.00 | -17211.60 |
| 244+00 | 24400.00 | 50.00 | 164.52 | 0.00 | 0.00 | 0.00 | 262.47 | 0.00 | 0.00 | 0.00 | 760.37 | 17709.50 | 0.00 | 0.00 | -16949.13 |

1

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

Addendum No. 03
ID 1060-33-81
Revised Sheet 4754
September 14, 2015

(CONTINUED)

**Division 6 USH 45 SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 244+50 | 24450.00 | 50.00 | 210.29 | 0.00 | 0.00 | 0.00 | 347.05 | 0.00 | 0.00 | 0.00 | 1107.42 | 17709.50 | 0.00 | 0.00 | -16602.08 |
| 245+00 | 24500.00 | 50.00 | 259.21 | 0.00 | 0.01 | 0.00 | 434.72 | 0.00 | 0.01 | 0.00 | 1542.14 | 17709.51 | 0.00 | 0.00 | -16167.37 |
| 245+50 | 24550.00 | 50.00 | 298.10 | 0.00 | 0.00 | 0.00 | 516.03 | 0.00 | 0.01 | 0.00 | 2058.17 | 17709.52 | 0.00 | 0.00 | -15651.35 |
| 246+00 | 24600.00 | 50.00 | 333.44 | 0.00 | 0.00 | 0.00 | 584.76 | 0.00 | 0.00 | 0.00 | 2642.93 | 17709.52 | 0.00 | 0.00 | -15066.59 |
| 246+50 | 24650.00 | 50.00 | 368.24 | 0.00 | 0.00 | 0.00 | 649.70 | 0.00 | 0.00 | 0.00 | 3292.63 | 17709.52 | 0.00 | 0.00 | -14416.89 |
| 247+00 | 24700.00 | 50.00 | 381.64 | 0.00 | 45.68 | 0.00 | 694.33 | 0.00 | 42.30 | 0.00 | 3986.97 | 17756.05 | 0.00 | 0.00 | -13769.08 |
| 247+50 | 24750.00 | 50.00 | 385.51 | 0.00 | 61.76 | 0.00 | 710.32 | 0.00 | 99.48 | 0.00 | 4697.29 | 17865.48 | 0.00 | 0.00 | -13168.19 |
| 248+00 | 24800.00 | 50.00 | 386.76 | 0.00 | 78.75 | 0.00 | 715.06 | 0.00 | 130.10 | 0.00 | 5412.35 | 18008.59 | 0.00 | 0.00 | -12596.23 |
| 248+50 | 24850.00 | 50.00 | 376.23 | 0.00 | 92.00 | 0.00 | 706.47 | 0.00 | 158.10 | 0.00 | 6118.83 | 18182.50 | 0.00 | 0.00 | -12063.67 |
| 249+00 | 24900.00 | 50.00 | 354.45 | 0.00 | 0.00 | 0.00 | 676.56 | 0.00 | 85.19 | 0.00 | 6795.38 | 18276.20 | 0.00 | 0.00 | -11480.82 |
| 249+50 | 24950.00 | 50.00 | 342.99 | 0.00 | 0.00 | 0.00 | 645.78 | 0.00 | 0.00 | 0.00 | 7441.16 | 18276.20 | 0.00 | 0.00 | -10835.04 |
| 250+00 | 25000.00 | 50.00 | 332.61 | 0.00 | 0.00 | 0.00 | 625.56 | 0.00 | 0.00 | 0.00 | 8066.72 | 18276.20 | 0.00 | 0.00 | -10209.49 |
| 250+50 | 25050.00 | 50.00 | 322.96 | 0.00 | 0.00 | 0.00 | 607.01 | 0.00 | 0.00 | 0.00 | 8673.72 | 18276.20 | 0.00 | 0.00 | -9602.48 |
| 251+00 | 25100.00 | 50.00 | 311.54 | 0.00 | 0.00 | 0.00 | 587.50 | 0.00 | 0.00 | 0.00 | 9261.22 | 18276.20 | 0.00 | 0.00 | -9014.98 |
| 251+50 | 25150.00 | 50.00 | 300.95 | 0.00 | 0.00 | 0.00 | 567.12 | 0.00 | 0.00 | 0.00 | 9828.35 | 18276.20 | 0.00 | 0.00 | -8447.86 |
| 252+00 | 25200.00 | 50.00 | 293.98 | 0.00 | 0.00 | 0.00 | 550.86 | 0.00 | 0.00 | 0.00 | 10379.21 | 18276.20 | 0.00 | 0.00 | -7897.00 |
| 252+50 | 25250.00 | 50.00 | 287.76 | 0.00 | 0.00 | 0.00 | 538.65 | 0.00 | 0.00 | 0.00 | 10917.85 | 18276.20 | 0.00 | 0.00 | -7358.35 |
| 253+00 | 25300.00 | 50.00 | 284.67 | 0.00 | 0.00 | 0.00 | 530.03 | 0.00 | 0.00 | 0.00 | 11447.88 | 18276.20 | 0.00 | 0.00 | -6828.32 |
| 253+50 | 25350.00 | 50.00 | 274.21 | 0.00 | 0.00 | 0.00 | 517.48 | 0.00 | 0.00 | 0.00 | 11965.36 | 18276.20 | 0.00 | 0.00 | -6310.84 |
| 254+00 | 25400.00 | 50.00 | 267.01 | 0.00 | 0.00 | 0.00 | 501.13 | 0.00 | 0.00 | 0.00 | 12466.49 | 18276.20 | 0.00 | 0.00 | -5809.71 |
| 254+50 | 25450.00 | 50.00 | 263.96 | 0.00 | 0.00 | 0.00 | 491.64 | 0.00 | 0.00 | 0.00 | 12958.13 | 18276.20 | 0.00 | 0.00 | -5318.07 |
| 255+00 | 25500.00 | 50.00 | 266.22 | 0.00 | 0.00 | 0.00 | 490.91 | 0.00 | 0.00 | 0.00 | 13449.04 | 18276.20 | 0.00 | 0.00 | -4827.16 |
| 255+50 | 25550.00 | 50.00 | 290.66 | 0.00 | 0.00 | 0.00 | 515.63 | 0.00 | 0.00 | 0.00 | 13964.67 | 18276.20 | 0.00 | 0.00 | -4311.53 |
| 256+00 | 25600.00 | 50.00 | 295.31 | 0.00 | 0.00 | 0.00 | 542.56 | 0.00 | 0.00 | 0.00 | 14507.23 | 18276.20 | 0.00 | 0.00 | -3768.97 |
| 256+50 | 25650.00 | 50.00 | 308.05 | 0.00 | 0.00 | 0.00 | 558.67 | 0.00 | 0.00 | 0.00 | 15065.90 | 18276.20 | 0.00 | 0.00 | -3210.30 |
| 256+53 | 25653.00 | 3.00 | 308.84 | 0.00 | 0.00 | 0.00 | 34.27 | 0.00 | 0.00 | 0.00 | 15100.17 | 18276.20 | 0.00 | 0.00 | -3176.03 |
| 256+53 | 25653.00 | 0.00 | 163.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 15100.17 | 18276.20 | 0.00 | 0.00 | -3176.03 |
| 257+00 | 25700.00 | 47.00 | 164.52 | 0.00 | 0.00 | 0.00 | 285.57 | 0.00 | 0.00 | 0.00 | 15385.74 | 18276.20 | 0.00 | 0.00 | -2890.46 |
| 257+00 | 25700.00 | 0.00 | 99.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 15385.74 | 18276.20 | 0.00 | 0.00 | -2890.46 |
| 257+50 | 25750.00 | 50.00 | 100.71 | 0.00 | 0.00 | 0.00 | 185.48 | 0.00 | 0.00 | 0.00 | 15571.22 | 18276.20 | 0.00 | 0.00 | -2704.98 |
| 258+00 | 25800.00 | 50.00 | 102.61 | 0.00 | 0.00 | 0.00 | 188.26 | 0.00 | 0.00 | 0.00 | 15759.48 | 18276.20 | 0.00 | 0.00 | -2516.72 |
| 258+50 | 25850.00 | 50.00 | 103.59 | 0.00 | 0.00 | 0.00 | 190.93 | 0.00 | 0.00 | 0.00 | 15950.41 | 18276.20 | 0.00 | 0.00 | -2325.80 |
| 259+00 | 25900.00 | 50.00 | 104.84 | 0.00 | 0.00 | 0.00 | 192.99 | 0.00 | 0.00 | 0.00 | 16143.40 | 18276.20 | 0.00 | 0.00 | -2132.81 |

1

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

Addendum No. 03
ID 1060-33-81
Revised Sheet 4755
September 14, 2015

(CONTINUED)

**Division 6 USH 45 SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 259+50 | 25950.00 | 50.00 | 104.06 | 0.00 | 0.00 | 0.00 | 193.43 | 0.00 | 0.00 | 0.00 | 16336.82 | 18276.20 | 0.00 | 0.00 | -1939.38 |
| 260+00 | 26000.00 | 50.00 | 100.76 | 0.00 | 0.00 | 0.00 | 189.65 | 0.00 | 0.00 | 0.00 | 16526.47 | 18276.20 | 0.00 | 0.00 | -1749.73 |
| 260+50 | 26050.00 | 50.00 | 99.37 | 0.00 | 0.00 | 0.00 | 185.31 | 0.00 | 0.00 | 0.00 | 16711.78 | 18276.20 | 0.00 | 0.00 | -1564.43 |
| 261+00 | 26100.00 | 50.00 | 95.97 | 0.00 | 0.00 | 0.00 | 180.87 | 0.00 | 0.00 | 0.00 | 16892.65 | 18276.20 | 0.00 | 0.00 | -1383.56 |
| 261+00 | 26100.00 | 0.00 | 150.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 16892.65 | 18276.20 | 0.00 | 0.00 | -1383.56 |
| 261+50 | 26150.00 | 50.00 | 145.90 | 0.00 | 0.00 | 0.00 | 274.38 | 0.00 | 0.00 | 0.00 | 17167.03 | 18276.20 | 0.00 | 0.00 | -1109.18 |
| 262+00 | 26200.00 | 50.00 | 138.75 | 0.00 | 0.00 | 0.00 | 263.56 | 0.00 | 0.00 | 0.00 | 17430.59 | 18276.20 | 0.00 | 0.00 | -845.61 |
| 262+50 | 26250.00 | 50.00 | 138.49 | 0.00 | 0.00 | 0.00 | 256.70 | 0.00 | 0.00 | 0.00 | 17687.30 | 18276.20 | 0.00 | 0.00 | -588.91 |
| 263+00 | 26300.00 | 50.00 | 131.68 | 0.00 | 0.00 | 0.00 | 250.16 | 0.00 | 0.00 | 0.00 | 17937.45 | 18276.20 | 0.00 | 0.00 | -338.75 |
| 263+50 | 26350.00 | 50.00 | 125.59 | 0.00 | 0.00 | 0.00 | 238.21 | 0.00 | 0.00 | 0.00 | 18175.67 | 18276.20 | 0.00 | 0.00 | -100.54 |
| 264+00 | 26400.00 | 50.00 | 122.46 | 0.00 | 0.00 | 0.00 | 229.68 | 0.00 | 0.00 | 0.00 | 18405.34 | 18276.20 | 0.00 | 0.00 | 129.14 |
| 264+31 | 26431.00 | 31.00 | 119.51 | 0.00 | 0.08 | 0.00 | 138.91 | 0.00 | 0.05 | 0.00 | 18544.25 | 18276.25 | 0.00 | 0.00 | 268.00 |
| 264+31 | 26431.00 | 0.00 | 150.47 | 0.00 | 0.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 18544.25 | 18276.25 | 0.00 | 0.00 | 268.00 |
| 264+50 | 26450.00 | 19.00 | 148.68 | 0.00 | 0.38 | 0.00 | 105.26 | 0.00 | 0.30 | 0.00 | 18649.51 | 18276.59 | 0.00 | 0.00 | 372.92 |
| 265+00 | 26500.00 | 50.00 | 145.79 | 0.00 | 0.14 | 0.00 | 272.66 | 0.00 | 0.48 | 0.00 | 18922.17 | 18277.12 | 0.00 | 0.00 | 645.05 |
| 265+50 | 26550.00 | 50.00 | 144.55 | 0.00 | 0.20 | 0.00 | 268.83 | 0.00 | 0.31 | 0.00 | 19191.00 | 18277.46 | 0.00 | 0.00 | 913.54 |
| 266+00 | 26600.00 | 50.00 | 137.87 | 0.00 | 0.30 | 0.00 | 261.50 | 0.00 | 0.46 | 0.00 | 19452.50 | 18277.97 | 0.00 | 0.00 | 1174.53 |
| 266+50 | 26650.00 | 50.00 | 130.12 | 0.00 | 0.48 | 0.00 | 248.14 | 0.00 | 0.72 | 0.00 | 19700.64 | 18278.77 | 0.00 | 0.00 | 1421.87 |
| 267+00 | 26700.00 | 50.00 | 121.37 | 0.00 | 0.61 | 0.00 | 232.86 | 0.00 | 1.01 | 0.00 | 19933.50 | 18279.88 | 0.00 | 0.00 | 1653.62 |
| 267+50 | 26750.00 | 50.00 | 111.85 | 0.00 | 0.70 | 0.00 | 215.94 | 0.00 | 1.21 | 0.00 | 20149.44 | 18281.21 | 0.00 | 0.00 | 1868.23 |
| 268+00 | 26800.00 | 50.00 | 100.23 | 0.00 | 0.92 | 0.00 | 196.37 | 0.00 | 1.50 | 0.00 | 20345.81 | 18282.86 | 0.00 | 0.00 | 2062.95 |
| 268+50 | 26850.00 | 50.00 | 89.04 | 0.00 | 0.00 | 0.00 | 175.25 | 0.00 | 0.85 | 0.00 | 20521.06 | 18283.80 | 0.00 | 0.00 | 2237.27 |
| 269+00 | 26900.00 | 50.00 | 74.97 | 0.00 | 0.00 | 0.00 | 151.86 | 0.00 | 0.00 | 0.00 | 20672.92 | 18283.80 | 0.00 | 0.00 | 2389.13 |
| 269+00 | 26900.00 | 0.00 | 56.47 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 20672.92 | 18283.80 | 0.00 | 0.00 | 2389.13 |
| 269+50 | 26950.00 | 50.00 | 44.41 | 0.00 | 0.01 | 0.00 | 93.41 | 0.00 | 0.05 | 0.00 | 20766.33 | 18283.85 | 0.00 | 0.00 | 2482.48 |
| 270+00 | 27000.00 | 50.00 | 31.48 | 0.00 | 0.01 | 0.00 | 70.27 | 0.00 | 0.02 | 0.00 | 20836.60 | 18283.87 | 0.00 | 0.00 | 2552.73 |
| 270+50 | 27050.00 | 50.00 | 18.50 | 0.00 | 0.32 | 0.00 | 46.28 | 0.00 | 0.31 | 0.00 | 20882.88 | 18284.21 | 0.00 | 0.00 | 2598.67 |
| 271+00 | 27100.00 | 50.00 | 9.52 | 0.00 | 4.00 | 0.00 | 25.94 | 0.00 | 4.00 | 0.00 | 20908.82 | 18288.61 | 0.00 | 0.00 | 2620.22 |
| 271+50 | 27150.00 | 50.00 | 3.68 | 0.00 | 14.64 | 0.00 | 12.22 | 0.00 | 17.26 | 0.00 | 20921.05 | 18307.59 | 0.00 | 0.00 | 2613.45 |
| 272+00 | 27200.00 | 50.00 | 1.81 | 0.00 | 25.17 | 0.00 | 5.08 | 0.00 | 36.86 | 0.00 | 20926.13 | 18348.14 | 0.00 | 0.00 | 2577.99 |
| 272+50 | 27250.00 | 50.00 | 2.77 | 0.00 | 36.40 | 0.00 | 4.24 | 0.00 | 57.01 | 0.00 | 20930.37 | 18410.85 | 0.00 | 0.00 | 2519.52 |
| 273+00 | 27300.00 | 50.00 | 7.61 | 0.00 | 47.06 | 0.00 | 9.61 | 0.00 | 77.28 | 0.00 | 20939.98 | 18495.85 | 0.00 | 0.00 | 2444.13 |
| 273+22 | 27322.00 | 22.00 | 10.51 | 0.00 | 53.21 | 0.00 | 7.38 | 0.00 | 40.85 | 0.00 | 20947.36 | 18540.79 | 0.00 | 0.00 | 2406.57 |

1

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 6 USH 45 SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 273+22 | 27322.00 | 0.00 | 10.50 | 0.00 | 67.44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 20947.36 | 18540.79 | 0.00 | 0.00 | 2406.57 |
| 273+50 | 27350.00 | 28.00 | 14.25 | 0.00 | 87.67 | 0.00 | 12.83 | 0.00 | 80.43 | 0.00 | 20960.20 | 18629.26 | 0.00 | 0.00 | 2330.94 |
| 274+00 | 27400.00 | 50.00 | 19.36 | 0.00 | 112.98 | 0.00 | 31.12 | 0.00 | 185.79 | 0.00 | 20991.32 | 18833.63 | 0.00 | 0.00 | 2157.69 |
| 274+50 | 27450.00 | 50.00 | 19.81 | 0.00 | 126.45 | 0.00 | 36.27 | 0.00 | 221.69 | 0.00 | 21027.58 | 19077.49 | 0.00 | 0.00 | 1950.10 |
| 275+00 | 27500.00 | 50.00 | 17.20 | 0.00 | 133.01 | 0.00 | 34.27 | 0.00 | 240.24 | 0.00 | 21061.85 | 19341.75 | 0.00 | 0.00 | 1720.10 |
| 275+50 | 27550.00 | 50.00 | 13.08 | 0.00 | 134.55 | 0.00 | 28.04 | 0.00 | 247.74 | 0.00 | 21089.89 | 19614.27 | 0.00 | 0.00 | 1475.62 |
| 276+00 | 27600.00 | 50.00 | 12.08 | 0.00 | 137.05 | 0.00 | 23.30 | 0.00 | 251.48 | 0.00 | 21113.19 | 19890.90 | 0.00 | 0.00 | 1222.29 |
| 276+50 | 27650.00 | 50.00 | 11.03 | 0.00 | 125.06 | 0.00 | 21.40 | 0.00 | 242.69 | 0.00 | 21134.58 | 20157.86 | 0.00 | 0.00 | 976.72 |
| 277+00 | 27700.00 | 50.00 | 10.49 | 0.00 | 103.01 | 0.00 | 19.93 | 0.00 | 211.18 | 0.00 | 21154.51 | 20390.16 | 0.00 | 0.00 | 764.35 |
| 277+50 | 27750.00 | 50.00 | 11.63 | 0.00 | 89.08 | 0.00 | 20.48 | 0.00 | 177.86 | 0.00 | 21174.99 | 20585.80 | 0.00 | 0.00 | 589.19 |
| 278+00 | 27800.00 | 50.00 | 14.26 | 0.00 | 75.27 | 0.00 | 23.97 | 0.00 | 152.18 | 0.00 | 21198.96 | 20753.20 | 0.00 | 0.00 | 445.77 |
| 278+50 | 27850.00 | 50.00 | 23.80 | 0.00 | 60.29 | 0.00 | 35.24 | 0.00 | 125.52 | 0.00 | 21234.21 | 20891.27 | 0.00 | 0.00 | 342.94 |
| 279+00 | 27900.00 | 50.00 | 29.25 | 0.00 | 45.52 | 0.00 | 49.12 | 0.00 | 97.97 | 0.00 | 21283.33 | 20999.04 | 0.00 | 0.00 | 284.29 |
| 279+50 | 27950.00 | 50.00 | 5.97 | 0.00 | 440.05 | 0.00 | 32.61 | 0.00 | 449.60 | 0.00 | 21315.94 | 21493.60 | 0.00 | 0.00 | -177.66 |
| 279+69 | 27968.98 | 18.98 | 6.02 | 0.00 | 682.51 | 0.00 | 4.21 | 0.00 | 394.56 | 0.00 | 21320.15 | 21927.61 | 0.00 | 0.00 | -607.46 |
| 279+75 BK | 27974.87 | 5.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.66 | 0.00 | 74.44 | 0.00 | 21320.81 | 22009.50 | 0.00 | 0.00 | -688.69 |
| 280+49 AH | 28049.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 280+56 | 28056.27 | 7.08 | 0.00 | 0.00 | 947.81 | 0.00 | 0.00 | 0.00 | 124.27 | 0.00 | 0.00 | 136.70 | 0.00 | 0.00 | -136.70 |
| 281+00 | 28100.00 | 43.73 | 114.36 | 0.00 | 21.14 | 0.00 | 92.61 | 0.00 | 784.67 | 0.00 | 92.61 | 999.83 | 0.00 | 0.00 | -907.22 |
| 281+50 | 28150.00 | 50.00 | 153.02 | 0.00 | 30.39 | 0.00 | 247.57 | 0.00 | 47.71 | 0.00 | 340.18 | 1052.32 | 0.00 | 0.00 | -712.13 |
| 282+00 | 28200.00 | 50.00 | 143.88 | 0.00 | 49.44 | 0.00 | 274.91 | 0.00 | 73.92 | 0.00 | 615.09 | 1133.62 | 0.00 | 0.00 | -518.53 |
| 282+50 | 28250.00 | 50.00 | 149.41 | 0.00 | 75.87 | 0.00 | 271.56 | 0.00 | 116.03 | 0.00 | 886.66 | 1261.26 | 0.00 | 0.00 | -374.60 |
| 283+00 | 28300.00 | 50.00 | 126.26 | 0.00 | 52.85 | 0.00 | 255.25 | 0.00 | 119.19 | 0.00 | 1141.91 | 1392.36 | 0.00 | 0.00 | -250.45 |
| 283+50 | 28350.00 | 50.00 | 129.36 | 0.00 | 9.36 | 0.00 | 236.69 | 0.00 | 57.60 | 0.00 | 1378.59 | 1455.72 | 0.00 | 0.00 | -77.13 |
| 284+00 | 28400.00 | 50.00 | 317.83 | 0.00 | 33.54 | 0.00 | 414.06 | 0.00 | 39.72 | 0.00 | 1792.66 | 1499.42 | 0.00 | 0.00 | 293.24 |
| 284+50 | 28450.00 | 50.00 | 318.40 | 0.00 | 86.10 | 0.00 | 589.10 | 0.00 | 110.78 | 0.00 | 2381.76 | 1621.27 | 0.00 | 0.00 | 760.49 |
| 284+94 | 28493.85 | 43.85 | 0.78 | 0.00 | 482.46 | 0.00 | 259.19 | 0.00 | 461.69 | 0.00 | 2640.94 | 2129.13 | 0.00 | 0.00 | 511.81 |
| 285+06 BK | 28506.37 | 12.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.18 | 0.00 | 111.86 | 0.00 | 2641.13 | 2252.18 | 0.00 | 0.00 | 388.95 |

1

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4756
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 6 USH 45 SB**

| STATION | Real Station | Distance | AREA (SF) | | | | Incremental Vol (CY) (Unadjusted) | | | | Cumulative Vol (CY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Salvaged/ | | | | Expanded | Expanded | Reduced | Mass |
| | | | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Unusable Pavement Material | Fill | EBS | Cut | Fill | EBS Backfill | EBS In Fill | Ordinate |
| | | | | | | | Note 1 | Note 2 | Note 3 | | 1.00 Note 1 | 1.1 | 1.30 Note 4 | 0.80 Note 5 | Note 6 |
| 286+16 AH | 28616.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 286+31 | 28631.21 | 15.05 | 1.01 | 0.00 | 183.31 | 0.00 | 0.28 | 0.00 | 51.09 | 0.00 | 0.28 | 56.20 | 0.00 | 0.00 | -55.92 |
| 286+50 | 28650.00 | 18.79 | 102.53 | 0.00 | 32.20 | 0.00 | 36.03 | 0.00 | 74.99 | 0.00 | 36.31 | 138.69 | 0.00 | 0.00 | -102.38 |
| 287+00 | 28700.00 | 50.00 | 121.84 | 0.00 | 16.59 | 0.00 | 207.75 | 0.00 | 45.18 | 0.00 | 244.06 | 188.38 | 0.00 | 0.00 | 55.68 |
| 287+50 | 28750.00 | 50.00 | 110.79 | 0.00 | 3.47 | 0.00 | 215.40 | 0.00 | 18.57 | 0.00 | 459.46 | 208.81 | 0.00 | 0.00 | 250.65 |
| 287+73 | 28773.00 | 23.00 | 104.45 | 0.00 | 1.20 | 0.00 | 91.68 | 0.00 | 1.99 | 0.00 | 551.13 | 211.00 | 0.00 | 0.00 | 340.13 |
| 287+73 | 28773.00 | 0.00 | 88.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 551.13 | 211.00 | 0.00 | 0.00 | 340.13 |
| 288+00 | 28800.00 | 27.00 | 83.84 | 0.00 | 0.00 | 0.00 | 86.28 | 0.00 | 0.00 | 0.00 | 637.41 | 211.00 | 0.00 | 0.00 | 426.41 |
| 288+50 | 28850.00 | 50.00 | 42.60 | 0.00 | 6.64 | 0.00 | 117.07 | 0.00 | 6.15 | 0.00 | 754.48 | 217.76 | 0.00 | 0.00 | 536.72 |
| 289+00 | 28900.00 | 50.00 | 4.71 | 0.00 | 177.81 | 0.00 | 43.81 | 0.00 | 170.79 | 0.00 | 798.29 | 405.63 | 0.00 | 0.00 | 392.66 |
| 289+50 | 28950.00 | 50.00 | 0.08 | 0.00 | 1087.36 | 0.00 | 4.44 | 0.00 | 1171.45 | 0.00 | 802.72 | 1694.23 | 0.00 | 0.00 | -891.50 |
| 290+00 | 29000.00 | 50.00 | 0.00 | 0.00 | 1373.66 | 0.00 | 0.07 | 0.00 | 2278.72 | 0.00 | 802.80 | 4200.82 | 0.00 | 0.00 | -3398.02 |
| 290+39 | 29039.00 | 39.00 | 0.00 | 0.00 | 1168.18 | 0.00 | 0.00 | 0.00 | 1835.77 | 0.00 | 802.80 | 6220.17 | 0.00 | 0.00 | -5417.37 |
| 290+39 | 29039.00 | 0.00 | 0.00 | 0.00 | 1484.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 802.80 | 6220.17 | 0.00 | 0.00 | -5417.37 |
| 290+50 | 29050.00 | 11.00 | 0.00 | 0.00 | 1376.94 | 0.00 | 0.00 | 0.00 | 582.81 | 0.00 | 802.80 | 6861.26 | 0.00 | 0.00 | -6058.47 |
| 291+00 | 29100.00 | 50.00 | 0.11 | 0.00 | 792.68 | 0.00 | 0.10 | 0.00 | 2008.91 | 0.00 | 802.90 | 9071.06 | 0.00 | 0.00 | -8268.16 |
| 291+40 | 29140.19 | 40.19 | 0.10 | 0.00 | 718.72 | 0.00 | 0.16 | 0.00 | 1124.87 | 0.00 | 803.06 | 10308.42 | 0.00 | 0.00 | -9505.37 |
| 291+82 BK | 29181.69 | 41.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 | 552.35 | 0.00 | 803.13 | 10916.01 | 0.00 | 0.00 | -10112.87 |

1

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4757
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 6 USH 45 SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 294+15 AH | 29415.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 294+57 | 29456.57 | 41.49 | 0.00 | 0.00 | 747.93 | 0.00 | 0.00 | 0.00 | 574.66 | 0.00 | 0.00 | 632.13 | 0.00 | 0.00 | -632.13 |
| 295+00 | 29500.00 | 43.43 | 0.00 | 0.00 | 538.86 | 0.00 | 0.00 | 0.00 | 1034.91 | 0.00 | 0.00 | 1770.53 | 0.00 | 0.00 | -1770.53 |
| 295+50 | 29550.00 | 50.00 | 0.11 | 0.00 | 679.20 | 0.00 | 0.10 | 0.00 | 1127.83 | 0.00 | 0.10 | 3011.15 | 0.00 | 0.00 | -3011.04 |
| 296+00 | 29600.00 | 50.00 | 0.11 | 0.00 | 1430.78 | 0.00 | 0.20 | 0.00 | 1953.69 | 0.00 | 0.31 | 5160.20 | 0.00 | 0.00 | -5159.89 |
| 296+50 | 29650.00 | 50.00 | 0.00 | 0.00 | 1917.93 | 0.00 | 0.10 | 0.00 | 3100.66 | 0.00 | 0.41 | 8570.92 | 0.00 | 0.00 | -8570.52 |
| 297+00 | 29700.00 | 50.00 | 74.63 | 0.00 | 872.25 | 0.00 | 69.10 | 0.00 | 2583.50 | 0.00 | 69.51 | 11412.77 | 0.00 | 0.00 | -11343.26 |
| 297+50 | 29750.00 | 50.00 | 331.56 | 0.00 | 92.33 | 0.00 | 376.10 | 0.00 | 893.13 | 0.00 | 445.61 | 12395.22 | 0.00 | 0.00 | -11949.60 |
| 298+00 | 29800.00 | 50.00 | 494.10 | 0.00 | 3.56 | 0.00 | 764.50 | 0.00 | 88.79 | 0.00 | 1210.11 | 12492.88 | 0.00 | 0.00 | -11282.77 |
| 298+50 | 29850.00 | 50.00 | 654.25 | 0.00 | 2.52 | 0.00 | 1063.29 | 0.00 | 5.63 | 0.00 | 2273.40 | 12499.07 | 0.00 | 0.00 | -10225.68 |
| 299+00 | 29900.00 | 50.00 | 690.47 | 0.00 | 2.50 | 0.00 | 1245.11 | 0.00 | 4.65 | 0.00 | 3518.51 | 12504.19 | 0.00 | 0.00 | -8985.68 |
| 299+50 | 29950.00 | 50.00 | 745.97 | 0.00 | 2.50 | 0.00 | 1330.04 | 0.00 | 4.63 | 0.00 | 4848.55 | 12509.28 | 0.00 | 0.00 | -7660.73 |
| 300+00 | 30000.00 | 50.00 | 765.16 | 0.00 | 2.67 | 0.00 | 1399.19 | 0.00 | 4.79 | 0.00 | 6247.74 | 12514.55 | 0.00 | 0.00 | -6266.80 |
| 300+50 | 30050.00 | 50.00 | 716.75 | 0.00 | 8.45 | 0.00 | 1372.14 | 0.00 | 10.30 | 0.00 | 7619.88 | 12525.87 | 0.00 | 0.00 | -4905.99 |
| 301+00 | 30100.00 | 50.00 | 691.30 | 0.00 | 8.75 | 0.00 | 1303.75 | 0.00 | 15.93 | 0.00 | 8923.63 | 12543.39 | 0.00 | 0.00 | -3619.76 |
| 301+50 | 30150.00 | 50.00 | 511.41 | 0.00 | 12.60 | 0.00 | 1113.62 | 0.00 | 19.77 | 0.00 | 10037.25 | 12565.14 | 0.00 | 0.00 | -2527.89 |
| 302+00 | 30200.00 | 50.00 | 379.63 | 0.00 | 22.26 | 0.00 | 825.04 | 0.00 | 32.28 | 0.00 | 10862.29 | 12600.64 | 0.00 | 0.00 | -1738.35 |
| 302+50 | 30250.00 | 50.00 | 312.84 | 0.00 | 10.16 | 0.00 | 641.18 | 0.00 | 30.02 | 0.00 | 11503.46 | 12633.66 | 0.00 | 0.00 | -1130.20 |
| 302+68 | 30268.00 | 18.00 | 293.03 | 0.00 | 8.33 | 0.00 | 201.96 | 0.00 | 6.16 | 0.00 | 11705.42 | 12640.44 | 0.00 | 0.00 | -935.02 |
| 302+68 | 30268.00 | 0.00 | 220.28 | 0.00 | 8.42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 11705.42 | 12640.44 | 0.00 | 0.00 | -935.02 |
| 303+00 | 30300.00 | 32.00 | 196.64 | 0.00 | 10.15 | 0.00 | 247.06 | 0.00 | 11.00 | 0.00 | 11952.48 | 12652.55 | 0.00 | 0.00 | -700.06 |
| 303+50 | 30350.00 | 50.00 | 156.16 | 0.00 | 11.49 | 0.00 | 326.67 | 0.00 | 20.04 | 0.00 | 12279.15 | 12674.59 | 0.00 | 0.00 | -395.44 |
| 304+00 | 30400.00 | 50.00 | 122.46 | 0.00 | 11.80 | 0.00 | 257.98 | 0.00 | 21.56 | 0.00 | 12537.13 | 12698.31 | 0.00 | 0.00 | -161.18 |
| 304+45 BK | 30445.45 | 45.45 | 104.42 | 0.00 | 0.80 | 0.00 | 190.96 | 0.00 | 10.61 | 0.00 | 12728.09 | 12709.97 | 0.00 | 0.00 | 18.12 |
| Column totals | | | | | | | 48051.08 | 0.00 | 60886.79 | 0.00 | | | | | |

3

1

Addendum No. 03
ID 1060-33-81
Revised Sheet 4758
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

**Division 6 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 180+00 AH | 18000.00 | 0.00 | 820.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 180+50 | 18050.00 | 50.00 | 1229.33 | 0.00 | 0.00 | 0.00 | 1898.30 | 0.00 | 0.00 | 0.00 | 1898.30 | 0.00 | 0.00 | 0.00 | 1898.30 |
| 181+00 | 18100.00 | 50.00 | 639.09 | 0.00 | 0.01 | 0.00 | 1730.02 | 0.00 | 0.01 | 0.00 | 3628.31 | 0.01 | 0.00 | 0.00 | 3628.30 |
| 181+50 BK | 18150.00 | 50.00 | 261.76 | 0.00 | 0.00 | 0.00 | 834.12 | 0.00 | 0.01 | 0.00 | 4462.44 | 0.02 | 0.00 | 0.00 | 4462.41 |
| 184+50 AH | 18450.00 | 0.00 | 0.00 | 0.00 | 54.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 185+00 | 18500.00 | 50.00 | 45.62 | 0.00 | 0.00 | 0.00 | 42.24 | 0.00 | 50.87 | 0.00 | 42.24 | 55.96 | 0.00 | 0.00 | -13.72 |
| 185+50 BK | 18550.00 | 50.00 | 28.09 | 0.00 | 0.80 | 0.00 | 68.25 | 0.00 | 0.74 | 0.00 | 110.49 | 56.77 | 0.00 | 0.00 | 53.72 |
| | | Column totals | | | | | 4572.93 | 0.00 | 51.63 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4759
September 14, 2015

**Division 6 IH 94 WB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 88+00 AH | 8800.00 | 0.00 | 123.61 | 0.00 | 13.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88+50 | 8850.00 | 50.00 | 115.67 | 0.00 | 14.66 | 0.00 | 221.56 | 0.00 | 26.05 | 0.00 | 221.56 | 28.65 | 0.00 | 0.00 | 192.90 |
| 89+00 | 8900.00 | 50.00 | 109.81 | 0.00 | 14.66 | 0.00 | 208.78 | 0.00 | 27.15 | 0.00 | 430.33 | 58.51 | 0.00 | 0.00 | 371.82 |
| 89+00 | 8900.00 | 0.00 | 138.17 | 0.00 | 14.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 430.33 | 58.51 | 0.00 | 0.00 | 371.82 |
| 89+50 | 8950.00 | 50.00 | 126.88 | 0.00 | 14.66 | 0.00 | 245.42 | 0.00 | 27.15 | 0.00 | 675.75 | 88.38 | 0.00 | 0.00 | 587.37 |
| 90+00 | 9000.00 | 50.00 | 117.42 | 0.00 | 14.67 | 0.00 | 226.20 | 0.00 | 27.16 | 0.00 | 901.95 | 118.25 | 0.00 | 0.00 | 783.70 |
| 90+50 | 9050.00 | 50.00 | 107.68 | 0.00 | 14.67 | 0.00 | 208.43 | 0.00 | 27.17 | 0.00 | 1110.38 | 148.13 | 0.00 | 0.00 | 962.25 |
| 91+00 | 9100.00 | 50.00 | 98.82 | 0.00 | 14.67 | 0.00 | 191.20 | 0.00 | 27.17 | 0.00 | 1301.58 | 178.02 | 0.00 | 0.00 | 1123.57 |
| 91+00 | 9100.00 | 0.00 | 129.35 | 0.00 | 14.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1301.58 | 178.02 | 0.00 | 0.00 | 1123.57 |
| 91+50 | 9150.00 | 50.00 | 114.69 | 0.00 | 14.67 | 0.00 | 225.96 | 0.00 | 27.17 | 0.00 | 1527.55 | 207.90 | 0.00 | 0.00 | 1319.65 |
| 92+00 | 9200.00 | 50.00 | 96.11 | 0.00 | 14.67 | 0.00 | 195.19 | 0.00 | 27.17 | 0.00 | 1722.73 | 237.78 | 0.00 | 0.00 | 1484.95 |
| 92+50 | 9250.00 | 50.00 | 78.98 | 0.00 | 14.67 | 0.00 | 162.12 | 0.00 | 27.17 | 0.00 | 1884.85 | 267.67 | 0.00 | 0.00 | 1617.19 |
| 93+00 | 9300.00 | 50.00 | 60.81 | 0.00 | 14.66 | 0.00 | 129.44 | 0.00 | 27.16 | 0.00 | 2014.29 | 297.54 | 0.00 | 0.00 | 1716.75 |
| 93+50 | 9350.00 | 50.00 | 42.21 | 0.00 | 14.67 | 0.00 | 95.39 | 0.00 | 27.16 | 0.00 | 2109.68 | 327.41 | 0.00 | 0.00 | 1782.26 |
| 94+00 | 9400.00 | 50.00 | 23.88 | 0.00 | 15.21 | 0.00 | 61.19 | 0.00 | 27.67 | 0.00 | 2170.87 | 357.85 | 0.00 | 0.00 | 1813.02 |
| 94+00 | 9400.00 | 0.00 | 40.20 | 0.00 | 15.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2170.87 | 357.85 | 0.00 | 0.00 | 1813.02 |
| 94+50 | 9450.00 | 50.00 | 16.76 | 0.00 | 26.24 | 0.00 | 52.74 | 0.00 | 38.40 | 0.00 | 2223.61 | 400.08 | 0.00 | 0.00 | 1823.53 |
| 95+00 | 9500.00 | 50.00 | 3.18 | 0.00 | 46.28 | 0.00 | 18.46 | 0.00 | 67.15 | 0.00 | 2242.07 | 473.95 | 0.00 | 0.00 | 1768.13 |
| 95+50 | 9550.00 | 50.00 | 0.12 | 0.00 | 81.47 | 0.00 | 3.06 | 0.00 | 118.29 | 0.00 | 2245.13 | 604.06 | 0.00 | 0.00 | 1641.07 |
| 96+00 | 9600.00 | 50.00 | 0.00 | 0.00 | 103.85 | 0.00 | 0.11 | 0.00 | 171.59 | 0.00 | 2245.24 | 792.81 | 0.00 | 0.00 | 1452.43 |
| 96+50 | 9650.00 | 50.00 | 0.00 | 0.00 | 117.85 | 0.00 | 0.00 | 0.00 | 205.28 | 0.00 | 2245.24 | 1018.62 | 0.00 | 0.00 | 1226.62 |
| 97+00 | 9700.00 | 50.00 | 0.00 | 0.00 | 132.85 | 0.00 | 0.00 | 0.00 | 232.13 | 0.00 | 2245.24 | 1273.96 | 0.00 | 0.00 | 971.28 |
| 97+50 | 9750.00 | 50.00 | 0.00 | 0.00 | 150.76 | 0.00 | 0.00 | 0.00 | 262.60 | 0.00 | 2245.24 | 1562.83 | 0.00 | 0.00 | 682.42 |
| 98+00 | 9800.00 | 50.00 | 0.00 | 0.00 | 156.13 | 0.00 | 0.00 | 0.00 | 284.16 | 0.00 | 2245.24 | 1875.40 | 0.00 | 0.00 | 369.84 |
| 98+50 | 9850.00 | 50.00 | 0.00 | 0.00 | 148.32 | 0.00 | 0.00 | 0.00 | 281.90 | 0.00 | 2245.24 | 2185.49 | 0.00 | 0.00 | 59.75 |
| 99+00 | 9900.00 | 50.00 | 0.00 | 0.00 | 261.17 | 0.00 | 0.00 | 0.00 | 379.16 | 0.00 | 2245.24 | 2602.56 | 0.00 | 0.00 | -357.32 |
| 99+34 | 9934.32 | 34.32 | 0.00 | 0.00 | 301.02 | 0.00 | 0.00 | 0.00 | 357.30 | 0.00 | 2245.24 | 2995.58 | 0.00 | 0.00 | -750.34 |
| 99+40 | 9939.64 | 5.32 | 0.00 | 0.00 | 261.28 | 0.00 | 0.00 | 0.00 | 55.40 | 0.00 | 2245.24 | 3056.53 | 0.00 | 0.00 | -811.29 |
| 99+79 BK | 9979.03 | 39.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 190.59 | 0.00 | 2245.24 | 3266.18 | 0.00 | 0.00 | -1020.94 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4760
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 6 IH 94 WB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 101+37 AH | 10137.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102+11 | 10210.81 | 73.69 | 0.00 | 0.00 | 195.04 | 0.00 | 0.00 | 0.00 | 266.16 | 0.00 | 0.00 | 292.77 | 0.00 | 0.00 | -292.77 |
| 102+16 | 10216.14 | 5.33 | 0.00 | 0.00 | 257.21 | 0.00 | 0.00 | 0.00 | 44.64 | 0.00 | 0.00 | 341.88 | 0.00 | 0.00 | -341.88 |
| 102+50 | 10250.00 | 33.86 | 0.00 | 0.00 | 196.44 | 0.00 | 0.00 | 0.00 | 284.46 | 0.00 | 0.00 | 654.78 | 0.00 | 0.00 | -654.78 |
| 103+00 | 10300.00 | 50.00 | 0.00 | 0.00 | 204.74 | 0.00 | 0.00 | 0.00 | 371.46 | 0.00 | 0.00 | 1063.39 | 0.00 | 0.00 | -1063.39 |
| 103+50 | 10350.00 | 50.00 | 0.00 | 0.00 | 234.25 | 0.00 | 0.00 | 0.00 | 406.47 | 0.00 | 0.00 | 1510.51 | 0.00 | 0.00 | -1510.51 |
| 104+00 | 10400.00 | 50.00 | 0.00 | 0.00 | 261.92 | 0.00 | 0.00 | 0.00 | 459.42 | 0.00 | 0.00 | 2015.86 | 0.00 | 0.00 | -2015.86 |
| 104+50 | 10450.00 | 50.00 | 0.00 | 0.00 | 248.80 | 0.00 | 0.00 | 0.00 | 472.89 | 0.00 | 0.00 | 2536.04 | 0.00 | 0.00 | -2536.04 |
| 105+00 | 10500.00 | 50.00 | 0.00 | 0.00 | 210.69 | 0.00 | 0.00 | 0.00 | 425.45 | 0.00 | 0.00 | 3004.04 | 0.00 | 0.00 | -3004.04 |
| 105+50 | 10550.00 | 50.00 | 0.00 | 0.00 | 162.84 | 0.00 | 0.00 | 0.00 | 345.86 | 0.00 | 0.00 | 3384.49 | 0.00 | 0.00 | -3384.49 |
| 106+00 | 10600.00 | 50.00 | 0.00 | 0.00 | 124.26 | 0.00 | 0.00 | 0.00 | 265.83 | 0.00 | 0.00 | 3676.90 | 0.00 | 0.00 | -3676.90 |
| 106+50 | 10650.00 | 50.00 | 0.03 | 0.00 | 78.00 | 0.00 | 0.03 | 0.00 | 187.28 | 0.00 | 0.03 | 3882.91 | 0.00 | 0.00 | -3882.88 |
| 107+00 | 10700.00 | 50.00 | 11.69 | 0.00 | 34.88 | 0.00 | 10.85 | 0.00 | 104.52 | 0.00 | 10.88 | 3997.88 | 0.00 | 0.00 | -3987.00 |
| 107+50 | 10750.00 | 50.00 | 41.33 | 0.00 | 10.40 | 0.00 | 49.09 | 0.00 | 41.93 | 0.00 | 59.97 | 4044.00 | 0.00 | 0.00 | -3984.03 |
| 108+00 | 10800.00 | 50.00 | 72.35 | 0.00 | 9.23 | 0.00 | 105.26 | 0.00 | 18.18 | 0.00 | 165.23 | 4063.99 | 0.00 | 0.00 | -3898.76 |
| 108+50 | 10850.00 | 50.00 | 88.96 | 0.00 | 9.22 | 0.00 | 149.36 | 0.00 | 17.08 | 0.00 | 314.59 | 4082.78 | 0.00 | 0.00 | -3768.19 |
| 109+00 | 10900.00 | 50.00 | 92.87 | 0.00 | 9.23 | 0.00 | 168.36 | 0.00 | 17.08 | 0.00 | 482.95 | 4101.58 | 0.00 | 0.00 | -3618.62 |
| 109+50 | 10950.00 | 50.00 | 85.09 | 0.00 | 9.23 | 0.00 | 164.78 | 0.00 | 17.09 | 0.00 | 647.73 | 4120.38 | 0.00 | 0.00 | -3472.65 |
| 110+00 | 11000.00 | 50.00 | 50.14 | 0.00 | 9.23 | 0.00 | 125.21 | 0.00 | 17.09 | 0.00 | 772.94 | 4139.18 | 0.00 | 0.00 | -3366.23 |
| 110+50 | 11050.00 | 50.00 | 9.16 | 0.00 | 35.49 | 0.00 | 54.91 | 0.00 | 41.41 | 0.00 | 827.85 | 4184.73 | 0.00 | 0.00 | -3356.88 |
| 111+00 | 11100.00 | 50.00 | 0.00 | 0.00 | 86.03 | 0.00 | 8.48 | 0.00 | 112.52 | 0.00 | 836.33 | 4308.50 | 0.00 | 0.00 | -3472.16 |
| 111+45 | 11144.67 | 44.67 | 0.00 | 0.00 | 674.12 | 0.00 | 0.00 | 0.00 | 628.85 | 0.00 | 836.33 | 5000.24 | 0.00 | 0.00 | -4163.90 |
| 111+77 BK | 11177.19 | 32.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 405.93 | 0.00 | 836.33 | 5446.76 | 0.00 | 0.00 | -4610.43 |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4761
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 6 IH 94 WB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 112+77 AH | 11276.67 | 0.00 | 0.00 | 0.00 | 1428.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113+00 | 11300.00 | 23.33 | 0.01 | 0.00 | 744.52 | 0.00 | 0.00 | 0.00 | 938.72 | 0.00 | 0.00 | 1032.59 | 0.00 | 0.00 | -1032.58 |
| 113+50 | 11350.00 | 50.00 | 0.37 | 0.00 | 479.36 | 0.00 | 0.35 | 0.00 | 1133.22 | 0.00 | 0.36 | 2279.13 | 0.00 | 0.00 | -2278.78 |
| 114+00 | 11400.00 | 50.00 | 1.41 | 0.00 | 562.66 | 0.00 | 1.65 | 0.00 | 964.83 | 0.00 | 2.00 | 3340.45 | 0.00 | 0.00 | -3338.45 |
| 114+50 | 11450.00 | 50.00 | 0.79 | 0.00 | 634.67 | 0.00 | 2.04 | 0.00 | 1108.64 | 0.00 | 4.04 | 4559.95 | 0.00 | 0.00 | -4555.91 |
| 115+00 | 11500.00 | 50.00 | 3.46 | 0.00 | 722.12 | 0.00 | 3.94 | 0.00 | 1256.29 | 0.00 | 7.98 | 5941.87 | 0.00 | 0.00 | -5933.89 |
| 115+50 | 11550.00 | 50.00 | 4.82 | 0.00 | 818.84 | 0.00 | 7.67 | 0.00 | 1426.81 | 0.00 | 15.64 | 7511.36 | 0.00 | 0.00 | -7495.72 |
| 116+00 | 11600.00 | 50.00 | 11.43 | 0.00 | 907.86 | 0.00 | 15.05 | 0.00 | 1598.80 | 0.00 | 30.69 | 9270.04 | 0.00 | 0.00 | -9239.35 |
| 116+50 | 11650.00 | 50.00 | 15.85 | 0.00 | 982.57 | 0.00 | 25.26 | 0.00 | 1750.40 | 0.00 | 55.95 | 11195.48 | 0.00 | 0.00 | -11139.53 |
| 117+00 | 11700.00 | 50.00 | 13.42 | 0.00 | 1042.72 | 0.00 | 27.10 | 0.00 | 1875.27 | 0.00 | 83.05 | 13258.27 | 0.00 | 0.00 | -13175.22 |
| 117+50 | 11750.00 | 50.00 | 3.21 | 0.00 | 1092.66 | 0.00 | 15.40 | 0.00 | 1977.20 | 0.00 | 98.45 | 15433.20 | 0.00 | 0.00 | -15334.75 |
| 118+00 | 11800.00 | 50.00 | 0.28 | 0.00 | 1134.15 | 0.00 | 3.23 | 0.00 | 2061.86 | 0.00 | 101.68 | 17701.25 | 0.00 | 0.00 | -17599.57 |
| 118+50 | 11850.00 | 50.00 | 0.00 | 0.00 | 1164.30 | 0.00 | 0.26 | 0.00 | 2128.19 | 0.00 | 101.94 | 20042.26 | 0.00 | 0.00 | -19940.32 |
| 119+00 | 11900.00 | 50.00 | 0.00 | 0.00 | 1168.70 | 0.00 | 0.00 | 0.00 | 2160.19 | 0.00 | 101.94 | 22418.46 | 0.00 | 0.00 | -22316.52 |
| 119+50 | 11950.00 | 50.00 | 0.00 | 0.00 | 1170.27 | 0.00 | 0.00 | 0.00 | 2165.71 | 0.00 | 101.94 | 24800.75 | 0.00 | 0.00 | -24698.81 |
| 120+00 | 12000.00 | 50.00 | 0.00 | 0.00 | 1141.22 | 0.00 | 0.00 | 0.00 | 2140.27 | 0.00 | 101.94 | 27155.04 | 0.00 | 0.00 | -27053.10 |
| 120+50 | 12050.00 | 50.00 | 0.00 | 0.00 | 1086.78 | 0.00 | 0.00 | 0.00 | 2062.96 | 0.00 | 101.94 | 29424.30 | 0.00 | 0.00 | -29322.36 |
| 121+00 | 12100.00 | 50.00 | 0.44 | 0.00 | 1017.21 | 0.00 | 0.41 | 0.00 | 1948.14 | 0.00 | 102.35 | 31567.25 | 0.00 | 0.00 | -31464.91 |
| 121+20 | 12119.70 | 19.70 | 2.40 | 0.00 | 992.50 | 0.00 | 1.04 | 0.00 | 733.17 | 0.00 | 103.38 | 32373.74 | 0.00 | 0.00 | -32270.36 |
| 121+50 | 12150.00 | 30.30 | 6.02 | 0.00 | 953.43 | 0.00 | 4.72 | 0.00 | 1091.88 | 0.00 | 108.11 | 33574.81 | 0.00 | 0.00 | -33466.71 |
| 122+00 | 12200.00 | 50.00 | 6.41 | 0.00 | 887.51 | 0.00 | 11.51 | 0.00 | 1704.57 | 0.00 | 119.62 | 35449.85 | 0.00 | 0.00 | -35330.23 |
| 122+50 | 12250.00 | 50.00 | 4.93 | 0.00 | 818.79 | 0.00 | 10.50 | 0.00 | 1579.91 | 0.00 | 130.12 | 37187.74 | 0.00 | 0.00 | -37057.63 |
| 123+00 | 12300.00 | 50.00 | 3.59 | 0.00 | 756.16 | 0.00 | 7.89 | 0.00 | 1458.29 | 0.00 | 138.01 | 38791.86 | 0.00 | 0.00 | -38653.85 |
| 123+50 | 12350.00 | 50.00 | 1.24 | 0.00 | 682.28 | 0.00 | 4.47 | 0.00 | 1331.89 | 0.00 | 142.48 | 40256.94 | 0.00 | 0.00 | -40114.46 |
| 124+00 | 12400.00 | 50.00 | 0.00 | 0.00 | 597.76 | 0.00 | 1.15 | 0.00 | 1185.22 | 0.00 | 143.63 | 41560.68 | 0.00 | 0.00 | -41417.06 |
| 124+50 | 12450.00 | 50.00 | 4.13 | 0.00 | 517.68 | 0.00 | 3.82 | 0.00 | 1032.81 | 0.00 | 147.45 | 42696.78 | 0.00 | 0.00 | -42549.33 |
| 125+00 | 12500.00 | 50.00 | 5.28 | 0.00 | 481.47 | 0.00 | 8.71 | 0.00 | 925.14 | 0.00 | 156.16 | 43714.43 | 0.00 | 0.00 | -43558.27 |
| 125+09 | 12508.93 | 8.93 | 6.73 | 0.00 | 496.81 | 0.00 | 1.99 | 0.00 | 161.78 | 0.00 | 158.15 | 43892.39 | 0.00 | 0.00 | -43734.24 |
| 126+67 BK | 12666.98 | 158.05 | 0.00 | 0.00 | 0.00 | 0.00 | 19.70 | 0.00 | 1454.09 | 0.00 | 177.85 | 45491.89 | 0.00 | 0.00 | -45314.04 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4762
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 6 IH 94 WB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 127+96 AH | 12796.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129+84 | 12984.08 | 187.60 | 0.00 | 0.00 | 228.45 | 0.00 | 0.00 | 0.00 | 793.65 | 0.00 | 0.00 | 873.02 | 0.00 | 0.00 | -873.02 |
| 130+00 | 13000.00 | 15.92 | 0.00 | 0.00 | 247.68 | 0.00 | 0.00 | 0.00 | 140.37 | 0.00 | 0.00 | 1027.42 | 0.00 | 0.00 | -1027.42 |
| 130+50 | 13050.00 | 50.00 | 0.00 | 0.00 | 323.95 | 0.00 | 0.00 | 0.00 | 529.29 | 0.00 | 0.00 | 1609.64 | 0.00 | 0.00 | -1609.64 |
| 131+00 | 13100.00 | 50.00 | 0.00 | 0.00 | 407.53 | 0.00 | 0.00 | 0.00 | 677.30 | 0.00 | 0.00 | 2354.67 | 0.00 | 0.00 | -2354.67 |
| 131+50 | 13150.00 | 50.00 | 0.00 | 0.00 | 495.28 | 0.00 | 0.00 | 0.00 | 835.94 | 0.00 | 0.00 | 3274.20 | 0.00 | 0.00 | -3274.20 |
| 131+68 | 13168.18 | 18.18 | 0.00 | 0.00 | 262.88 | 0.00 | 0.00 | 0.00 | 255.25 | 0.00 | 0.00 | 3554.97 | 0.00 | 0.00 | -3554.97 |
| 131+68 | 13168.18 | 0.00 | 0.00 | 0.00 | 262.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3554.97 | 0.00 | 0.00 | -3554.97 |
| 132+00 | 13200.00 | 31.82 | 0.00 | 0.00 | 289.46 | 0.00 | 0.00 | 0.00 | 325.48 | 0.00 | 0.00 | 3913.00 | 0.00 | 0.00 | -3913.00 |
| 132+50 | 13250.00 | 50.00 | 0.00 | 0.00 | 326.26 | 0.00 | 0.00 | 0.00 | 570.11 | 0.00 | 0.00 | 4540.12 | 0.00 | 0.00 | -4540.12 |
| 133+00 | 13300.00 | 50.00 | 0.00 | 0.00 | 363.37 | 0.00 | 0.00 | 0.00 | 638.55 | 0.00 | 0.00 | 5242.52 | 0.00 | 0.00 | -5242.52 |
| 133+50 | 13350.00 | 50.00 | 0.00 | 0.00 | 387.38 | 0.00 | 0.00 | 0.00 | 695.14 | 0.00 | 0.00 | 6007.17 | 0.00 | 0.00 | -6007.17 |
| 134+00 | 13400.00 | 50.00 | 0.00 | 0.00 | 398.05 | 0.00 | 0.00 | 0.00 | 727.25 | 0.00 | 0.00 | 6807.15 | 0.00 | 0.00 | -6807.15 |
| 134+50 | 13450.00 | 50.00 | 0.00 | 0.00 | 386.20 | 0.00 | 0.00 | 0.00 | 726.16 | 0.00 | 0.00 | 7605.92 | 0.00 | 0.00 | -7605.92 |
| 135+00 | 13500.00 | 50.00 | 0.00 | 0.00 | 355.52 | 0.00 | 0.00 | 0.00 | 686.78 | 0.00 | 0.00 | 8361.38 | 0.00 | 0.00 | -8361.38 |
| 135+50 | 13550.00 | 50.00 | 0.00 | 0.00 | 307.41 | 0.00 | 0.00 | 0.00 | 613.82 | 0.00 | 0.00 | 9036.58 | 0.00 | 0.00 | -9036.58 |
| 135+87 | 13586.79 | 36.79 | 0.00 | 0.00 | 268.10 | 0.00 | 0.00 | 0.00 | 392.09 | 0.00 | 0.00 | 9467.89 | 0.00 | 0.00 | -9467.89 |
| 135+87 | 13586.79 | 0.00 | 0.00 | 0.00 | 417.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9467.89 | 0.00 | 0.00 | -9467.89 |
| 136+00 | 13600.00 | 13.21 | 0.00 | 0.00 | 332.23 | 0.00 | 0.00 | 0.00 | 183.43 | 0.00 | 0.00 | 9669.66 | 0.00 | 0.00 | -9669.66 |
| 136+50 | 13650.00 | 50.00 | 0.00 | 0.00 | 262.51 | 0.00 | 0.00 | 0.00 | 550.69 | 0.00 | 0.00 | 10275.42 | 0.00 | 0.00 | -10275.42 |
| 137+00 | 13700.00 | 50.00 | 0.00 | 0.00 | 196.36 | 0.00 | 0.00 | 0.00 | 424.88 | 0.00 | 0.00 | 10742.78 | 0.00 | 0.00 | -10742.78 |
| 137+50 | 13750.00 | 50.00 | 0.00 | 0.00 | 141.51 | 0.00 | 0.00 | 0.00 | 312.84 | 0.00 | 0.00 | 11086.91 | 0.00 | 0.00 | -11086.91 |
| 138+00 | 13800.00 | 50.00 | 0.00 | 0.00 | 84.61 | 0.00 | 0.00 | 0.00 | 209.37 | 0.00 | 0.00 | 11317.22 | 0.00 | 0.00 | -11317.22 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4763
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:35 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew138 PLOT SCALE : 1:1

(CONTINUED)

**Division 6 IH 94 WB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 138+50 | 13850.00 | 50.00 | 0.00 | 0.00 | 39.79 | 0.00 | 0.00 | 0.00 | 115.19 | 0.00 | 0.00 | 11443.92 | 0.00 | 0.00 | -11443.92 |
| 139+00 | 13900.00 | 50.00 | 15.37 | 0.00 | 19.03 | 0.00 | 14.23 | 0.00 | 54.46 | 0.00 | 14.23 | 11503.83 | 0.00 | 0.00 | -11489.60 |
| 139+50 | 13950.00 | 50.00 | 34.81 | 0.00 | 9.26 | 0.00 | 46.46 | 0.00 | 26.19 | 0.00 | 60.69 | 11532.65 | 0.00 | 0.00 | -11471.95 |
| 140+00 | 14000.00 | 50.00 | 56.44 | 0.00 | 11.32 | 0.00 | 84.49 | 0.00 | 19.06 | 0.00 | 145.19 | 11553.61 | 0.00 | 0.00 | -11408.42 |
| 140+50 | 14050.00 | 50.00 | 69.71 | 0.00 | 18.76 | 0.00 | 116.81 | 0.00 | 27.85 | 0.00 | 261.99 | 11584.24 | 0.00 | 0.00 | -11322.25 |
| 141+00 | 14100.00 | 50.00 | 77.80 | 0.00 | 33.16 | 0.00 | 136.58 | 0.00 | 48.07 | 0.00 | 398.57 | 11637.13 | 0.00 | 0.00 | -11238.55 |
| 141+50 | 14150.00 | 50.00 | 85.95 | 0.00 | 49.98 | 0.00 | 151.62 | 0.00 | 76.98 | 0.00 | 550.19 | 11721.80 | 0.00 | 0.00 | -11171.61 |
| 142+00 | 14200.00 | 50.00 | 91.66 | 0.00 | 81.20 | 0.00 | 164.45 | 0.00 | 121.46 | 0.00 | 714.65 | 11855.41 | 0.00 | 0.00 | -11140.77 |
| 142+50 | 14250.00 | 50.00 | 96.91 | 0.00 | 125.83 | 0.00 | 174.60 | 0.00 | 191.69 | 0.00 | 889.25 | 12066.28 | 0.00 | 0.00 | -11177.03 |
| 143+00 | 14300.00 | 50.00 | 102.68 | 0.00 | 181.08 | 0.00 | 184.81 | 0.00 | 284.18 | 0.00 | 1074.06 | 12378.87 | 0.00 | 0.00 | -11304.82 |
| 143+50 | 14350.00 | 50.00 | 111.18 | 0.00 | 231.43 | 0.00 | 198.02 | 0.00 | 381.95 | 0.00 | 1272.07 | 12799.02 | 0.00 | 0.00 | -11526.95 |
| 144+00 | 14400.00 | 50.00 | 117.32 | 0.00 | 274.91 | 0.00 | 211.57 | 0.00 | 468.83 | 0.00 | 1483.65 | 13314.74 | 0.00 | 0.00 | -11831.09 |
| 144+50 | 14450.00 | 50.00 | 124.00 | 0.00 | 20.27 | 0.00 | 223.44 | 0.00 | 273.31 | 0.00 | 1707.09 | 13615.38 | 0.00 | 0.00 | -11908.29 |
| 145+00 | 14500.00 | 50.00 | 128.28 | 0.00 | 18.32 | 0.00 | 233.59 | 0.00 | 35.73 | 0.00 | 1940.69 | 13654.69 | 0.00 | 0.00 | -11714.00 |
| 145+00 | 14500.00 | 0.00 | 163.18 | 0.00 | 24.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1940.69 | 13654.69 | 0.00 | 0.00 | -11714.00 |
| 145+50 | 14550.00 | 50.00 | 164.53 | 0.00 | 18.07 | 0.00 | 303.44 | 0.00 | 39.44 | 0.00 | 2244.12 | 13698.08 | 0.00 | 0.00 | -11453.96 |
| 146+00 | 14600.00 | 50.00 | 171.01 | 0.00 | 11.39 | 0.00 | 310.69 | 0.00 | 27.28 | 0.00 | 2554.81 | 13728.08 | 0.00 | 0.00 | -11173.28 |
| 146+50 | 14650.00 | 50.00 | 168.63 | 0.00 | 4.44 | 0.00 | 314.48 | 0.00 | 14.66 | 0.00 | 2869.29 | 13744.21 | 0.00 | 0.00 | -10874.92 |
| 147+00 | 14700.00 | 50.00 | 212.34 | 0.00 | 5.49 | 0.00 | 352.75 | 0.00 | 9.19 | 0.00 | 3222.04 | 13754.32 | 0.00 | 0.00 | -10532.28 |
| 147+50 | 14750.00 | 50.00 | 249.76 | 0.00 | 13.41 | 0.00 | 427.87 | 0.00 | 17.50 | 0.00 | 3649.91 | 13773.57 | 0.00 | 0.00 | -10123.66 |
| 147+66 | 14766.00 | 16.00 | 239.93 | 0.00 | 16.63 | 0.00 | 145.09 | 0.00 | 8.90 | 0.00 | 3795.00 | 13783.36 | 0.00 | 0.00 | -9988.36 |
| 147+66 | 14766.00 | 0.00 | 239.98 | 0.00 | 29.68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3795.00 | 13783.36 | 0.00 | 0.00 | -9988.36 |
| 148+00 | 14800.00 | 34.00 | 279.29 | 0.00 | 292.44 | 0.00 | 326.95 | 0.00 | 202.82 | 0.00 | 4121.95 | 14006.46 | 0.00 | 0.00 | -9884.51 |
| 148+50 | 14850.00 | 50.00 | 256.70 | 0.00 | 131.57 | 0.00 | 496.29 | 0.00 | 392.60 | 0.00 | 4618.24 | 14438.32 | 0.00 | 0.00 | -9820.08 |
| 148+65 | 14865.00 | 15.00 | 228.81 | 0.00 | 40.16 | 0.00 | 134.86 | 0.00 | 47.70 | 0.00 | 4753.10 | 14490.79 | 0.00 | 0.00 | -9737.69 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4764
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 6 IH 94 WB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 148+65 | 14865.00 | 0.00 | 183.74 | 0.00 | 39.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4753.10 | 14490.79 | 0.00 | 0.00 | -9737.69 |
| 149+00 | 14900.00 | 35.00 | 153.15 | 0.00 | 6.98 | 0.00 | 218.35 | 0.00 | 30.42 | 0.00 | 4971.45 | 14524.25 | 0.00 | 0.00 | -9552.80 |
| 149+50 | 14950.00 | 50.00 | 150.75 | 0.00 | 4.16 | 0.00 | 281.39 | 0.00 | 10.31 | 0.00 | 5252.84 | 14535.60 | 0.00 | 0.00 | -9282.76 |
| 150+00 | 15000.00 | 50.00 | 151.76 | 0.00 | 0.53 | 0.00 | 280.10 | 0.00 | 4.34 | 0.00 | 5532.94 | 14540.38 | 0.00 | 0.00 | -9007.43 |
| 150+09 | 15008.73 | 8.73 | 153.00 | 0.00 | 0.30 | 0.00 | 49.27 | 0.00 | 0.13 | 0.00 | 5582.21 | 14540.52 | 0.00 | 0.00 | -8958.31 |
| 150+50 | 15050.00 | 41.27 | 153.65 | 0.00 | 0.17 | 0.00 | 233.56 | 0.00 | 0.51 | 0.00 | 5766.51 | 14540.94 | 0.00 | 0.00 | -8774.43 |
| 151+00 | 15100.00 | 50.00 | 157.48 | 0.00 | 0.00 | 0.00 | 288.08 | 0.00 | 0.16 | 0.00 | 6054.59 | 14541.11 | 0.00 | 0.00 | -8486.52 |
| 151+50 | 15150.00 | 50.00 | 157.64 | 0.00 | 0.00 | 0.00 | 291.78 | 0.00 | 0.00 | 0.00 | 6346.37 | 14541.11 | 0.00 | 0.00 | -8194.74 |
| 152+00 | 15200.00 | 50.00 | 146.56 | 0.00 | 0.50 | 0.00 | 281.67 | 0.00 | 0.46 | 0.00 | 6628.04 | 14541.62 | 0.00 | 0.00 | -7913.58 |
| 152+50 | 15250.00 | 50.00 | 136.11 | 0.00 | 1.92 | 0.00 | 261.73 | 0.00 | 2.24 | 0.00 | 6889.77 | 14544.08 | 0.00 | 0.00 | -7654.32 |
| 153+00 | 15300.00 | 50.00 | 127.38 | 0.00 | 2.99 | 0.00 | 243.97 | 0.00 | 4.55 | 0.00 | 7133.74 | 14549.08 | 0.00 | 0.00 | -7415.35 |
| 153+50 | 15350.00 | 50.00 | 127.45 | 0.00 | 4.01 | 0.00 | 235.95 | 0.00 | 6.48 | 0.00 | 7369.69 | 14556.21 | 0.00 | 0.00 | -7186.52 |
| 154+00 | 15400.00 | 50.00 | 141.96 | 0.00 | 5.35 | 0.00 | 249.45 | 0.00 | 8.67 | 0.00 | 7619.15 | 14565.75 | 0.00 | 0.00 | -6946.60 |
| 154+50 | 15450.00 | 50.00 | 165.31 | 0.00 | 0.00 | 0.00 | 284.51 | 0.00 | 4.95 | 0.00 | 7903.66 | 14571.20 | 0.00 | 0.00 | -6667.54 |
| 154+74 | 15474.19 | 24.19 | 174.59 | 0.00 | 0.00 | 0.00 | 152.26 | 0.00 | 0.00 | 0.00 | 8055.92 | 14571.20 | 0.00 | 0.00 | -6515.28 |
| 154+74 | 15474.19 | 0.00 | 174.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 8055.92 | 14571.20 | 0.00 | 0.00 | -6515.28 |
| 155+00 | 15500.00 | 25.81 | 223.96 | 0.00 | 0.00 | 0.00 | 190.50 | 0.00 | 0.00 | 0.00 | 8246.42 | 14571.20 | 0.00 | 0.00 | -6324.78 |
| 155+50 | 15550.00 | 50.00 | 251.24 | 0.00 | 0.00 | 0.00 | 440.00 | 0.00 | 0.00 | 0.00 | 8686.42 | 14571.20 | 0.00 | 0.00 | -5884.78 |
| 156+00 | 15600.00 | 50.00 | 275.39 | 0.00 | 0.00 | 0.00 | 487.62 | 0.00 | 0.00 | 0.00 | 9174.04 | 14571.20 | 0.00 | 0.00 | -5397.16 |
| 156+50 | 15650.00 | 50.00 | 311.03 | 0.00 | 0.00 | 0.00 | 542.98 | 0.00 | 0.00 | 0.00 | 9717.02 | 14571.20 | 0.00 | 0.00 | -4854.18 |
| 157+00 | 15700.00 | 50.00 | 332.47 | 0.00 | 0.07 | 0.00 | 595.83 | 0.00 | 0.06 | 0.00 | 10312.85 | 14571.27 | 0.00 | 0.00 | -4258.42 |
| 157+50 | 15750.00 | 50.00 | 344.19 | 0.00 | 1.82 | 0.00 | 626.54 | 0.00 | 1.75 | 0.00 | 10939.39 | 14573.19 | 0.00 | 0.00 | -3633.81 |
| 158+00 | 15800.00 | 50.00 | 377.00 | 0.00 | 2.94 | 0.00 | 667.77 | 0.00 | 4.41 | 0.00 | 11607.16 | 14578.04 | 0.00 | 0.00 | -2970.89 |
| 158+50 | 15850.00 | 50.00 | 400.02 | 0.00 | 5.25 | 0.00 | 719.46 | 0.00 | 7.58 | 0.00 | 12326.62 | 14586.38 | 0.00 | 0.00 | -2259.76 |
| 159+00 | 15900.00 | 50.00 | 439.52 | 0.00 | 5.74 | 0.00 | 777.35 | 0.00 | 10.18 | 0.00 | 13103.97 | 14597.58 | 0.00 | 0.00 | -1493.61 |
| 159+26 | 15925.84 | 25.84 | 477.47 | 0.00 | 2.29 | 0.00 | 438.80 | 0.00 | 3.84 | 0.00 | 13542.77 | 14601.80 | 0.00 | 0.00 | -1059.04 |
| 159+26 | 15925.84 | 0.00 | 233.15 | 0.00 | 2.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 13542.77 | 14601.80 | 0.00 | 0.00 | -1059.04 |
| 159+50 | 15950.00 | 24.16 | 255.38 | 0.00 | 2.35 | 0.00 | 218.57 | 0.00 | 2.08 | 0.00 | 13761.34 | 14604.09 | 0.00 | 0.00 | -842.75 |
| 160+00 | 16000.00 | 50.00 | 266.34 | 0.00 | 2.48 | 0.00 | 483.07 | 0.00 | 4.47 | 0.00 | 14244.41 | 14609.01 | 0.00 | 0.00 | -364.59 |
| 160+50 | 16050.00 | 50.00 | 261.69 | 0.00 | 2.61 | 0.00 | 488.92 | 0.00 | 4.71 | 0.00 | 14733.33 | 14614.19 | 0.00 | 0.00 | 119.14 |
| 161+00 | 16100.00 | 50.00 | 274.49 | 0.00 | 2.88 | 0.00 | 496.46 | 0.00 | 5.08 | 0.00 | 15229.79 | 14619.78 | 0.00 | 0.00 | 610.01 |

1

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4765
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 6 IH 94 WB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 161+50 | 16150.00 | 50.00 | 264.08 | 0.00 | 0.77 | 0.00 | 498.68 | 0.00 | 3.38 | 0.00 | 15728.47 | 14623.50 | 0.00 | 0.00 | 1104.97 |
| 162+00 | 16200.00 | 50.00 | 244.13 | 0.00 | 0.13 | 0.00 | 470.56 | 0.00 | 0.83 | 0.00 | 16199.03 | 14624.42 | 0.00 | 0.00 | 1574.62 |
| 162+50 | 16250.00 | 50.00 | 229.57 | 0.00 | 0.14 | 0.00 | 438.61 | 0.00 | 0.25 | 0.00 | 16637.64 | 14624.69 | 0.00 | 0.00 | 2012.95 |
| 163+00 | 16300.00 | 50.00 | 225.25 | 0.00 | 0.01 | 0.00 | 421.13 | 0.00 | 0.14 | 0.00 | 17058.77 | 14624.84 | 0.00 | 0.00 | 2433.93 |
| 163+44 | 16343.92 | 43.92 | 221.67 | 0.00 | 0.00 | 0.00 | 363.49 | 0.00 | 0.01 | 0.00 | 17422.27 | 14624.85 | 0.00 | 0.00 | 2797.42 |
| 163+44 | 16343.92 | 0.00 | 296.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 17422.27 | 14624.85 | 0.00 | 0.00 | 2797.42 |
| 163+50 | 16350.00 | 6.08 | 298.74 | 0.00 | 0.00 | 0.00 | 67.05 | 0.00 | 0.00 | 0.00 | 17489.32 | 14624.85 | 0.00 | 0.00 | 2864.47 |
| 164+00 | 16400.00 | 50.00 | 295.29 | 0.00 | 4.06 | 0.00 | 550.03 | 0.00 | 3.76 | 0.00 | 18039.35 | 14628.99 | 0.00 | 0.00 | 3410.36 |
| 164+50 | 16450.00 | 50.00 | 283.36 | 0.00 | 6.99 | 0.00 | 535.79 | 0.00 | 10.23 | 0.00 | 18575.14 | 14640.24 | 0.00 | 0.00 | 3934.89 |
| 165+00 | 16500.00 | 50.00 | 276.79 | 0.00 | 7.76 | 0.00 | 518.66 | 0.00 | 13.66 | 0.00 | 19093.79 | 14655.27 | 0.00 | 0.00 | 4438.53 |
| 165+50 | 16550.00 | 50.00 | 276.15 | 0.00 | 7.84 | 0.00 | 511.98 | 0.00 | 14.44 | 0.00 | 19605.77 | 14671.15 | 0.00 | 0.00 | 4934.62 |
| 166+00 | 16600.00 | 50.00 | 261.85 | 0.00 | 9.69 | 0.00 | 498.15 | 0.00 | 16.23 | 0.00 | 20103.92 | 14689.01 | 0.00 | 0.00 | 5414.91 |
| 166+50 | 16650.00 | 50.00 | 241.42 | 0.00 | 9.59 | 0.00 | 465.99 | 0.00 | 17.85 | 0.00 | 20569.91 | 14708.65 | 0.00 | 0.00 | 5861.27 |
| 167+00 | 16700.00 | 50.00 | 223.78 | 0.00 | 8.37 | 0.00 | 430.74 | 0.00 | 16.63 | 0.00 | 21000.65 | 14726.94 | 0.00 | 0.00 | 6273.72 |
| 167+50 | 16750.00 | 50.00 | 212.10 | 0.00 | 8.54 | 0.00 | 403.59 | 0.00 | 15.66 | 0.00 | 21404.25 | 14744.16 | 0.00 | 0.00 | 6660.08 |
| 168+00 | 16800.00 | 50.00 | 201.88 | 0.00 | 8.96 | 0.00 | 383.31 | 0.00 | 16.20 | 0.00 | 21787.56 | 14761.99 | 0.00 | 0.00 | 7025.58 |
| 168+50 | 16850.00 | 50.00 | 194.11 | 0.00 | 9.35 | 0.00 | 366.66 | 0.00 | 16.95 | 0.00 | 22154.22 | 14780.64 | 0.00 | 0.00 | 7373.58 |
| 169+00 | 16900.00 | 50.00 | 201.97 | 0.00 | 9.55 | 0.00 | 366.74 | 0.00 | 17.50 | 0.00 | 22520.96 | 14799.89 | 0.00 | 0.00 | 7721.07 |
| 169+50 | 16950.00 | 50.00 | 200.41 | 0.00 | 9.58 | 0.00 | 372.57 | 0.00 | 17.71 | 0.00 | 22893.53 | 14819.37 | 0.00 | 0.00 | 8074.16 |
| 170+00 | 17000.00 | 50.00 | 226.08 | 0.00 | 10.08 | 0.00 | 394.90 | 0.00 | 18.20 | 0.00 | 23288.43 | 14839.39 | 0.00 | 0.00 | 8449.04 |
| 170+50 | 17050.00 | 50.00 | 245.46 | 0.00 | 11.25 | 0.00 | 436.61 | 0.00 | 19.75 | 0.00 | 23725.04 | 14861.12 | 0.00 | 0.00 | 8863.92 |
| 171+00 | 17100.00 | 50.00 | 244.19 | 0.00 | 11.40 | 0.00 | 453.38 | 0.00 | 20.97 | 0.00 | 24178.42 | 14884.19 | 0.00 | 0.00 | 9294.23 |
| 171+50 | 17150.00 | 50.00 | 242.29 | 0.00 | 9.48 | 0.00 | 450.44 | 0.00 | 19.33 | 0.00 | 24628.87 | 14905.45 | 0.00 | 0.00 | 9723.41 |
| 172+00 | 17200.00 | 50.00 | 245.31 | 0.00 | 9.25 | 0.00 | 451.48 | 0.00 | 17.34 | 0.00 | 25080.35 | 14924.53 | 0.00 | 0.00 | 10155.82 |
| 172+50 | 17250.00 | 50.00 | 233.10 | 0.00 | 9.20 | 0.00 | 442.97 | 0.00 | 17.08 | 0.00 | 25523.32 | 14943.32 | 0.00 | 0.00 | 10580.00 |
| 173+00 | 17300.00 | 50.00 | 243.96 | 0.00 | 9.15 | 0.00 | 441.72 | 0.00 | 16.99 | 0.00 | 25965.04 | 14962.01 | 0.00 | 0.00 | 11003.03 |
| 173+50 | 17350.00 | 50.00 | 254.22 | 0.00 | 9.10 | 0.00 | 461.28 | 0.00 | 16.90 | 0.00 | 26426.32 | 14980.60 | 0.00 | 0.00 | 11445.72 |
| 174+00 | 17400.00 | 50.00 | 269.23 | 0.00 | 9.05 | 0.00 | 484.68 | 0.00 | 16.81 | 0.00 | 26911.00 | 14999.09 | 0.00 | 0.00 | 11911.91 |
| 174+50 | 17450.00 | 50.00 | 294.39 | 0.00 | 9.00 | 0.00 | 521.87 | 0.00 | 16.71 | 0.00 | 27432.87 | 15017.47 | 0.00 | 0.00 | 12415.40 |
| 175+00 | 17500.00 | 50.00 | 330.05 | 0.00 | 8.95 | 0.00 | 578.19 | 0.00 | 16.62 | 0.00 | 28011.05 | 15035.75 | 0.00 | 0.00 | 12975.30 |
| 175+10 | 17510.46 | 10.46 | 334.55 | 0.00 | 20.14 | 0.00 | 128.74 | 0.00 | 5.63 | 0.00 | 28139.79 | 15041.95 | 0.00 | 0.00 | 13097.84 |

1

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4766
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 6 IH 94 WB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 175+10 | 17510.46 | 0.00 | 241.33 | 0.00 | 8.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 28139.79 | 15041.95 | 0.00 | 0.00 | 13097.84 |
| 175+50 | 17550.00 | 39.54 | 258.75 | 0.00 | 8.94 | 0.00 | 366.17 | 0.00 | 13.09 | 0.00 | 28505.96 | 15056.35 | 0.00 | 0.00 | 13449.60 |
| 176+00 | 17600.00 | 50.00 | 285.55 | 0.00 | 8.85 | 0.00 | 503.98 | 0.00 | 16.47 | 0.00 | 29009.94 | 15074.47 | 0.00 | 0.00 | 13935.47 |
| 176+50 | 17650.00 | 50.00 | 317.60 | 0.00 | 8.80 | 0.00 | 558.47 | 0.00 | 16.34 | 0.00 | 29568.41 | 15092.45 | 0.00 | 0.00 | 14475.96 |
| 177+00 | 17700.00 | 50.00 | 352.83 | 0.00 | 8.75 | 0.00 | 620.77 | 0.00 | 16.25 | 0.00 | 30189.18 | 15110.32 | 0.00 | 0.00 | 15078.85 |
| 177+50 | 17750.00 | 50.00 | 383.07 | 0.00 | 8.80 | 0.00 | 681.39 | 0.00 | 16.25 | 0.00 | 30870.57 | 15128.20 | 0.00 | 0.00 | 15742.37 |
| 177+84 | 17783.50 | 33.50 | 396.42 | 0.00 | 8.66 | 0.00 | 483.57 | 0.00 | 10.83 | 0.00 | 31354.14 | 15140.11 | 0.00 | 0.00 | 16214.03 |
| 177+84 | 17783.50 | 0.00 | 618.73 | 0.00 | 9.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 31354.14 | 15140.11 | 0.00 | 0.00 | 16214.03 |
| 178+00 | 17800.00 | 16.50 | 648.80 | 0.00 | 8.82 | 0.00 | 387.30 | 0.00 | 5.51 | 0.00 | 31741.44 | 15146.17 | 0.00 | 0.00 | 16595.27 |
| 178+50 | 17850.00 | 50.00 | 654.91 | 0.00 | 8.60 | 0.00 | 1207.14 | 0.00 | 16.13 | 0.00 | 32948.58 | 15163.92 | 0.00 | 0.00 | 17784.66 |
| 179+00 | 17900.00 | 50.00 | 658.38 | 0.00 | 11.98 | 0.00 | 1216.01 | 0.00 | 19.06 | 0.00 | 34164.59 | 15184.88 | 0.00 | 0.00 | 18979.71 |
| 179+50 | 17950.00 | 50.00 | 673.17 | 0.00 | 8.51 | 0.00 | 1232.92 | 0.00 | 18.97 | 0.00 | 35397.51 | 15205.75 | 0.00 | 0.00 | 20191.76 |
| 180+00 | 18000.00 | 50.00 | 691.51 | 0.00 | 8.46 | 0.00 | 1263.59 | 0.00 | 15.71 | 0.00 | 36661.10 | 15223.03 | 0.00 | 0.00 | 21438.07 |
| 180+50 | 18050.00 | 50.00 | 695.81 | 0.00 | 17.27 | 0.00 | 1284.56 | 0.00 | 23.82 | 0.00 | 37945.65 | 15249.24 | 0.00 | 0.00 | 22696.42 |
| 181+00 | 18100.00 | 50.00 | 774.29 | 0.00 | 8.38 | 0.00 | 1361.20 | 0.00 | 23.75 | 0.00 | 39306.86 | 15275.36 | 0.00 | 0.00 | 24031.49 |
| 181+50 | 18150.00 | 50.00 | 759.23 | 0.00 | 23.28 | 0.00 | 1419.93 | 0.00 | 29.31 | 0.00 | 40726.78 | 15307.61 | 0.00 | 0.00 | 25419.17 |
| 182+00 | 18200.00 | 50.00 | 946.64 | 0.00 | 51.64 | 0.00 | 1579.51 | 0.00 | 69.37 | 0.00 | 42306.29 | 15383.92 | 0.00 | 0.00 | 26922.38 |
| 182+50 | 18250.00 | 50.00 | 814.85 | 0.00 | 59.36 | 0.00 | 1631.01 | 0.00 | 102.78 | 0.00 | 43937.30 | 15496.97 | 0.00 | 0.00 | 28440.33 |
| 183+00 | 18300.00 | 50.00 | 537.28 | 0.00 | 73.93 | 0.00 | 1251.97 | 0.00 | 123.42 | 0.00 | 45189.28 | 15632.73 | 0.00 | 0.00 | 29556.54 |
| 183+50 | 18350.00 | 50.00 | 470.05 | 0.00 | 134.19 | 0.00 | 932.71 | 0.00 | 192.70 | 0.00 | 46121.99 | 15844.71 | 0.00 | 0.00 | 30277.28 |
| 184+00 | 18400.00 | 50.00 | 457.54 | 0.00 | 184.45 | 0.00 | 858.88 | 0.00 | 295.04 | 0.00 | 46980.87 | 16169.25 | 0.00 | 0.00 | 30811.62 |
| 184+50 | 18450.00 | 50.00 | 431.06 | 0.00 | 273.96 | 0.00 | 822.78 | 0.00 | 424.45 | 0.00 | 47803.65 | 16636.15 | 0.00 | 0.00 | 31167.50 |
| 185+00 BK | 18500.00 | 50.00 | 406.68 | 0.00 | 635.17 | 0.00 | 775.69 | 0.00 | 841.79 | 0.00 | 48579.33 | 17562.11 | 0.00 | 0.00 | 31017.22 |
| | | | | | | Column totals | 51888.02 | 0.00 | 65242.81 | 0.00 | | | | | |

3

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4767
September 14, 2015

**Division 6 RAMP SW**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 559+26 AH | 55925.84 | 0.00 | 243.31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 559+50 | 55950.00 | 24.16 | 256.23 | 0.00 | 0.00 | 0.00 | 223.50 | 0.00 | 0.00 | 0.00 | 223.50 | 0.00 | 0.00 | 0.00 | 223.50 |
| 560+00 | 56000.00 | 50.00 | 280.63 | 0.00 | 0.00 | 0.00 | 497.09 | 0.00 | 0.00 | 0.00 | 720.59 | 0.00 | 0.00 | 0.00 | 720.59 |
| 560+50 | 56050.00 | 50.00 | 300.97 | 0.00 | 0.00 | 0.00 | 538.52 | 0.00 | 0.00 | 0.00 | 1259.11 | 0.00 | 0.00 | 0.00 | 1259.11 |
| 561+00 | 56100.00 | 50.00 | 316.31 | 0.00 | 0.00 | 0.00 | 571.56 | 0.00 | 0.00 | 0.00 | 1830.66 | 0.00 | 0.00 | 0.00 | 1830.66 |
| 561+50 | 56150.00 | 50.00 | 306.18 | 0.00 | 0.00 | 0.00 | 576.38 | 0.00 | 0.00 | 0.00 | 2407.04 | 0.00 | 0.00 | 0.00 | 2407.04 |
| 561+61 | 56160.95 | 10.95 | 301.78 | 0.00 | 0.00 | 0.00 | 123.28 | 0.00 | 0.00 | 0.00 | 2530.32 | 0.00 | 0.00 | 0.00 | 2530.32 |
| 561+61 | 56160.95 | 0.00 | 210.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2530.32 | 0.00 | 0.00 | 0.00 | 2530.32 |
| 562+00 | 56200.00 | 39.05 | 214.80 | 0.00 | 0.00 | 0.00 | 307.25 | 0.00 | 0.00 | 0.00 | 2837.58 | 0.00 | 0.00 | 0.00 | 2837.58 |
| 562+50 | 56250.00 | 50.00 | 213.73 | 0.00 | 0.00 | 0.00 | 396.79 | 0.00 | 0.00 | 0.00 | 3234.36 | 0.00 | 0.00 | 0.00 | 3234.36 |
| 563+00 | 56300.00 | 50.00 | 206.44 | 0.00 | 0.00 | 0.00 | 389.05 | 0.00 | 0.00 | 0.00 | 3623.41 | 0.00 | 0.00 | 0.00 | 3623.41 |
| 563+44 | 56343.92 | 43.92 | 301.78 | 0.00 | 0.00 | 0.00 | 413.35 | 0.00 | 0.00 | 0.00 | 4036.76 | 0.00 | 0.00 | 0.00 | 4036.76 |
| 563+44 | 56343.92 | 0.00 | 119.62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4036.76 | 0.00 | 0.00 | 0.00 | 4036.76 |
| 563+50 | 56350.00 | 6.08 | 117.30 | 0.00 | 0.00 | 0.00 | 26.68 | 0.00 | 0.00 | 0.00 | 4063.44 | 0.00 | 0.00 | 0.00 | 4063.44 |
| 563+93 | 56392.79 | 42.79 | 103.39 | 0.00 | 0.00 | 0.00 | 174.88 | 0.00 | 0.00 | 0.00 | 4238.31 | 0.00 | 0.00 | 0.00 | 4238.31 |
| 563+93 | 56392.79 | 0.00 | 204.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4238.31 | 0.00 | 0.00 | 0.00 | 4238.31 |
| 564+00 | 56400.00 | 7.21 | 200.03 | 0.00 | 0.00 | 0.00 | 53.97 | 0.00 | 0.00 | 0.00 | 4292.28 | 0.00 | 0.00 | 0.00 | 4292.28 |
| 564+50 | 56450.00 | 50.00 | 192.59 | 0.00 | 0.00 | 0.00 | 363.54 | 0.00 | 0.00 | 0.00 | 4655.82 | 0.00 | 0.00 | 0.00 | 4655.82 |
| 564+81 BK | 56481.21 | 31.21 | 180.84 | 0.00 | 0.00 | 0.00 | 215.83 | 0.00 | 0.00 | 0.00 | 4871.65 | 0.00 | 0.00 | 0.00 | 4871.65 |
| | | | | | | Column totals | 4871.65 | 0.00 | 0.00 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4768
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:35 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew143 PLOT SCALE : 1:1

**Division 6 RAMP CS**

| STATION | Real Station | Distance | AREA (SF) | | | | Incremental Vol (CY) (Unadjusted) | | | | Cumulative Vol (CY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Expanded Fill | Expanded EBS Backfill | Reduced EBS In Fill | Mass Ordinate |
| | | | | | | | Note 1 | Note 2 | Note 3 | | 1.00 Note 1 | 1.1 | 1.30 Note 4 | 0.80 Note 5 | Note 6 |
| 556+53 AH | 55653.41 | 0.00 | 145.21 | 0.00 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 557+00 | 55700.00 | 46.59 | 172.34 | 0.00 | 0.00 | 0.00 | 273.98 | 0.00 | 0.14 | 0.00 | 273.98 | 0.15 | 0.00 | 0.00 | 273.82 |
| 557+50 | 55750.00 | 50.00 | 175.69 | 0.00 | 0.00 | 0.00 | 322.25 | 0.00 | 0.00 | 0.00 | 596.23 | 0.15 | 0.00 | 0.00 | 596.07 |
| 558+00 | 55800.00 | 50.00 | 182.14 | 0.00 | 0.00 | 0.00 | 331.32 | 0.00 | 0.00 | 0.00 | 927.55 | 0.15 | 0.00 | 0.00 | 927.40 |
| 558+50 | 55850.00 | 50.00 | 191.36 | 0.00 | 0.00 | 0.00 | 345.83 | 0.00 | 0.00 | 0.00 | 1273.38 | 0.15 | 0.00 | 0.00 | 1273.23 |
| 559+00 | 55900.00 | 50.00 | 198.00 | 0.00 | 0.00 | 0.00 | 360.52 | 0.00 | 0.00 | 0.00 | 1633.90 | 0.15 | 0.00 | 0.00 | 1633.75 |
| 559+50 | 55950.00 | 50.00 | 207.61 | 0.00 | 0.00 | 0.00 | 375.56 | 0.00 | 0.00 | 0.00 | 2009.47 | 0.15 | 0.00 | 0.00 | 2009.31 |
| 560+00 | 56000.00 | 50.00 | 204.00 | 0.00 | 0.00 | 0.00 | 381.12 | 0.00 | 0.00 | 0.00 | 2390.59 | 0.15 | 0.00 | 0.00 | 2390.43 |
| 560+50 | 56050.00 | 50.00 | 195.23 | 0.00 | 0.00 | 0.00 | 369.66 | 0.00 | 0.00 | 0.00 | 2760.24 | 0.15 | 0.00 | 0.00 | 2760.09 |
| 561+00 | 56100.00 | 50.00 | 185.41 | 0.00 | 0.00 | 0.00 | 352.44 | 0.00 | 0.00 | 0.00 | 3112.69 | 0.15 | 0.00 | 0.00 | 3112.54 |
| 561+50 | 56150.00 | 50.00 | 162.97 | 0.00 | 0.00 | 0.00 | 322.57 | 0.00 | 0.00 | 0.00 | 3435.26 | 0.15 | 0.00 | 0.00 | 3435.11 |
| 562+00 | 56200.00 | 50.00 | 143.54 | 0.00 | 0.00 | 0.00 | 283.81 | 0.00 | 0.00 | 0.00 | 3719.07 | 0.15 | 0.00 | 0.00 | 3718.92 |
| 562+50 | 56250.00 | 50.00 | 134.33 | 0.00 | 0.00 | 0.00 | 257.29 | 0.00 | 0.00 | 0.00 | 3976.35 | 0.15 | 0.00 | 0.00 | 3976.20 |
| 563+00 | 56300.00 | 50.00 | 132.41 | 0.00 | 0.00 | 0.00 | 246.98 | 0.00 | 0.00 | 0.00 | 4223.34 | 0.15 | 0.00 | 0.00 | 4223.18 |
| 563+50 | 56350.00 | 50.00 | 131.19 | 0.00 | 0.00 | 0.00 | 244.07 | 0.00 | 0.00 | 0.00 | 4467.41 | 0.15 | 0.00 | 0.00 | 4467.26 |
| 564+00 | 56400.00 | 50.00 | 125.22 | 0.00 | 0.00 | 0.00 | 237.42 | 0.00 | 0.00 | 0.00 | 4704.83 | 0.15 | 0.00 | 0.00 | 4704.68 |
| 564+31 | 56431.00 | 31.00 | 121.68 | 0.00 | 39.60 | 0.00 | 141.74 | 0.00 | 22.73 | 0.00 | 4846.57 | 25.16 | 0.00 | 0.00 | 4821.41 |
| 564+31 | 56431.00 | 0.00 | 90.65 | 0.00 | 39.42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4846.57 | 25.16 | 0.00 | 0.00 | 4821.41 |
| 564+50 | 56450.00 | 19.00 | 89.99 | 0.00 | 35.07 | 0.00 | 63.56 | 0.00 | 26.21 | 0.00 | 4910.12 | 53.99 | 0.00 | 0.00 | 4856.14 |
| 565+00 | 56500.00 | 50.00 | 97.32 | 0.00 | 23.04 | 0.00 | 173.44 | 0.00 | 53.81 | 0.00 | 5083.56 | 113.18 | 0.00 | 0.00 | 4970.38 |
| 565+50 | 56550.00 | 50.00 | 86.50 | 0.00 | 11.99 | 0.00 | 170.20 | 0.00 | 32.44 | 0.00 | 5253.76 | 148.85 | 0.00 | 0.00 | 5104.91 |
| 566+00 | 56600.00 | 50.00 | 82.44 | 0.00 | 1.99 | 0.00 | 156.43 | 0.00 | 12.94 | 0.00 | 5410.19 | 163.09 | 0.00 | 0.00 | 5247.10 |
| 566+50 | 56650.00 | 50.00 | 81.52 | 0.00 | 0.08 | 0.00 | 151.81 | 0.00 | 1.92 | 0.00 | 5562.00 | 165.20 | 0.00 | 0.00 | 5396.80 |
| 567+00 | 56700.00 | 50.00 | 81.15 | 0.00 | 0.92 | 0.00 | 150.62 | 0.00 | 0.93 | 0.00 | 5712.62 | 166.22 | 0.00 | 0.00 | 5546.40 |
| 567+50 | 56750.00 | 50.00 | 70.73 | 0.00 | 3.26 | 0.00 | 140.63 | 0.00 | 3.87 | 0.00 | 5853.25 | 170.48 | 0.00 | 0.00 | 5682.78 |
| 568+00 | 56800.00 | 50.00 | 58.00 | 0.00 | 2.98 | 0.00 | 119.19 | 0.00 | 5.78 | 0.00 | 5972.45 | 176.83 | 0.00 | 0.00 | 5795.62 |
| 568+50 | 56850.00 | 50.00 | 42.79 | 0.00 | 7.77 | 0.00 | 93.32 | 0.00 | 9.95 | 0.00 | 6065.77 | 187.78 | 0.00 | 0.00 | 5877.99 |
| 569+00 | 56900.00 | 50.00 | 33.24 | 0.00 | 17.64 | 0.00 | 70.40 | 0.00 | 23.53 | 0.00 | 6136.17 | 213.66 | 0.00 | 0.00 | 5922.51 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4769
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 6 RAMP CS**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 569+00 | 56900.00 | 0.00 | 21.53 | 0.00 | 17.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6136.17 | 213.66 | 0.00 | 0.00 | 5922.51 |
| 569+50 | 56950.00 | 50.00 | 11.07 | 0.00 | 33.01 | 0.00 | 30.19 | 0.00 | 47.06 | 0.00 | 6166.36 | 265.43 | 0.00 | 0.00 | 5900.92 |
| 570+00 | 57000.00 | 50.00 | 4.66 | 0.00 | 42.60 | 0.00 | 14.56 | 0.00 | 70.01 | 0.00 | 6180.92 | 342.44 | 0.00 | 0.00 | 5838.48 |
| 570+50 | 57050.00 | 50.00 | 0.00 | 0.00 | 53.93 | 0.00 | 4.31 | 0.00 | 89.38 | 0.00 | 6185.24 | 440.76 | 0.00 | 0.00 | 5744.47 |
| 571+00 | 57100.00 | 50.00 | 0.00 | 0.00 | 76.84 | 0.00 | 0.00 | 0.00 | 121.08 | 0.00 | 6185.24 | 573.95 | 0.00 | 0.00 | 5611.28 |
| 571+00 | 57100.00 | 0.00 | 0.00 | 0.00 | 67.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6185.24 | 573.95 | 0.00 | 0.00 | 5611.28 |
| 571+50 | 57150.00 | 50.00 | 0.00 | 0.00 | 87.48 | 0.00 | 0.00 | 0.00 | 143.49 | 0.00 | 6185.24 | 731.79 | 0.00 | 0.00 | 5453.44 |
| 572+00 | 57200.00 | 50.00 | 0.00 | 0.00 | 63.38 | 0.00 | 0.00 | 0.00 | 139.69 | 0.00 | 6185.24 | 885.45 | 0.00 | 0.00 | 5299.79 |
| 572+02 BK | 57202.35 | 2.35 | 0.00 | 0.00 | 63.94 | 0.00 | 0.00 | 0.00 | 5.54 | 0.00 | 6185.24 | 891.54 | 0.00 | 0.00 | 5293.69 |
| | | | | | Column totals | | 6185.24 | 0.00 | 810.49 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4770
September 14, 2015


9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:35 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew145 PLOT SCALE : 1:1

**Division 6 RAMP EN**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 514+22 AH | 51421.56 | 0.00 | 8.98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.10 | 0.00 | 0.00 | 0.00 |
| 514+50 | 51450.00 | 28.44 | 11.42 | 0.00 | 0.00 | 0.00 | 10.74 | 0.00 | 0.00 | 0.00 | 11.74 | 1.10 | 0.00 | 0.00 | 10.74 |
| 515+00 | 51500.00 | 50.00 | 14.98 | 0.00 | 0.00 | 0.00 | 24.44 | 0.00 | 0.00 | 0.00 | 36.19 | 1.10 | 0.00 | 0.00 | 35.19 |
| 515+50 | 51550.00 | 50.00 | 17.11 | 0.00 | 0.00 | 0.00 | 29.71 | 0.00 | 0.00 | 0.00 | 65.90 | 1.10 | 0.00 | 0.00 | 64.90 |
| 516+00 | 51600.00 | 50.00 | 18.96 | 0.00 | 0.00 | 0.00 | 33.40 | 0.00 | 0.00 | 0.00 | 99.30 | 1.10 | 0.00 | 0.00 | 98.30 |
| 516+05 | 51605.36 | 5.36 | 15.13 | 0.00 | 0.00 | 0.00 | 3.38 | 0.00 | 0.00 | 0.00 | 102.68 | 1.10 | 0.00 | 0.00 | 101.68 |
| 516+05 | 51605.36 | 0.00 | 48.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 102.68 | 1.10 | 0.00 | 0.00 | 101.68 |
| 516+50 | 51650.00 | 44.64 | 45.63 | 0.00 | 0.00 | 0.00 | 77.70 | 0.00 | 0.00 | 0.00 | 180.38 | 1.10 | 0.00 | 0.00 | 179.38 |
| 517+00 | 51700.00 | 50.00 | 58.38 | 0.00 | 0.00 | 0.00 | 96.31 | 0.00 | 0.00 | 0.00 | 276.69 | 1.10 | 0.00 | 0.00 | 275.69 |
| 517+50 | 51750.00 | 50.00 | 76.09 | 0.00 | 0.00 | 0.00 | 124.51 | 0.00 | 0.00 | 0.00 | 401.20 | 1.10 | 0.00 | 0.00 | 400.20 |
| 518+00 | 51800.00 | 50.00 | 94.94 | 0.00 | 0.02 | 0.00 | 158.36 | 0.00 | 0.02 | 0.00 | 559.56 | 1.12 | 0.00 | 0.00 | 558.54 |
| 518+50 | 51850.00 | 50.00 | 102.78 | 0.00 | 0.00 | 0.00 | 183.07 | 0.00 | 0.02 | 0.00 | 742.63 | 1.14 | 0.00 | 0.00 | 741.59 |
| 519+00 | 51900.00 | 50.00 | 83.99 | 0.00 | 0.00 | 0.00 | 172.94 | 0.00 | 0.00 | 0.00 | 915.57 | 1.14 | 0.00 | 0.00 | 914.53 |
| 519+21 | 51921.00 | 21.00 | 67.60 | 0.00 | 0.00 | 0.00 | 58.95 | 0.00 | 0.00 | 0.00 | 974.52 | 1.14 | 0.00 | 0.00 | 973.48 |
| 519+21 | 51921.00 | 0.00 | 89.82 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 974.52 | 1.14 | 0.00 | 0.00 | 973.48 |
| 519+47 | 51946.56 | 25.56 | 65.47 | 0.00 | 0.00 | 0.00 | 73.50 | 0.00 | 0.01 | 0.00 | 1048.02 | 1.15 | 0.00 | 0.00 | 1046.97 |
| 519+47 | 51946.56 | 0.00 | 38.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1048.02 | 1.15 | 0.00 | 0.00 | 1046.97 |
| 519+50 | 51950.00 | 3.44 | 40.32 | 0.00 | 0.00 | 0.00 | 5.04 | 0.00 | 0.00 | 0.00 | 1053.07 | 1.15 | 0.00 | 0.00 | 1052.02 |
| 520+00 | 52000.00 | 50.00 | 0.00 | 0.00 | 50.79 | 0.00 | 37.33 | 0.00 | 47.03 | 0.00 | 1090.40 | 52.88 | 0.00 | 0.00 | 1037.62 |
| 520+50 | 52050.00 | 50.00 | 0.00 | 0.00 | 147.17 | 0.00 | 0.00 | 0.00 | 183.30 | 0.00 | 1090.40 | 254.51 | 0.00 | 0.00 | 835.99 |
| 521+00 | 52100.00 | 50.00 | 0.00 | 0.00 | 254.06 | 0.00 | 0.00 | 0.00 | 371.51 | 0.00 | 1090.40 | 663.17 | 0.00 | 0.00 | 427.33 |
| 521+50 | 52150.00 | 50.00 | 0.00 | 0.00 | 391.54 | 0.00 | 0.00 | 0.00 | 597.78 | 0.00 | 1090.40 | 1320.72 | 0.00 | 0.00 | -230.22 |
| 521+93 | 52192.92 | 42.92 | 0.00 | 0.00 | 601.84 | 0.00 | 0.00 | 0.00 | 789.55 | 0.00 | 1090.40 | 2189.23 | 0.00 | 0.00 | -1098.73 |
| 521+93 | 52192.92 | 0.00 | 0.00 | 0.00 | 138.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1090.40 | 2189.23 | 0.00 | 0.00 | -1098.73 |
| 522+00 | 52200.00 | 7.08 | 0.00 | 0.00 | 143.52 | 0.00 | 0.00 | 0.00 | 36.93 | 0.00 | 1090.40 | 2229.85 | 0.00 | 0.00 | -1139.35 |
| 522+50 | 52250.00 | 50.00 | 0.00 | 0.00 | 181.86 | 0.00 | 0.00 | 0.00 | 301.28 | 0.00 | 1090.40 | 2561.26 | 0.00 | 0.00 | -1470.76 |
| 523+00 | 52300.00 | 50.00 | 0.00 | 0.00 | 217.87 | 0.00 | 0.00 | 0.00 | 370.12 | 0.00 | 1090.40 | 2968.39 | 0.00 | 0.00 | -1877.89 |
| 523+50 | 52350.00 | 50.00 | 0.00 | 0.00 | 499.48 | 0.00 | 0.00 | 0.00 | 664.21 | 0.00 | 1090.40 | 3699.02 | 0.00 | 0.00 | -2608.52 |
| 523+58 | 52357.73 | 7.73 | 0.00 | 0.00 | 495.24 | 0.00 | 0.00 | 0.00 | 142.39 | 0.00 | 1090.40 | 3855.65 | 0.00 | 0.00 | -2765.15 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4771
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 6 RAMP EN**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 523+58 | 52357.73 | 0.00 | 0.00 | 0.00 | 326.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1090.40 | 3855.65 | 0.00 | 0.00 | -2765.15 |
| 524+00 | 52400.00 | 42.27 | 0.00 | 0.00 | 420.88 | 0.00 | 0.00 | 0.00 | 585.38 | 0.00 | 1090.40 | 4499.58 | 0.00 | 0.00 | -3409.08 |
| 524+50 | 52450.00 | 50.00 | 0.00 | 0.00 | 390.54 | 0.00 | 0.00 | 0.00 | 751.31 | 0.00 | 1090.40 | 5326.02 | 0.00 | 0.00 | -4235.52 |
| 525+00 | 52500.00 | 50.00 | 0.00 | 0.00 | 376.49 | 0.00 | 0.00 | 0.00 | 710.21 | 0.00 | 1090.40 | 6107.26 | 0.00 | 0.00 | -5016.76 |
| 525+25 | 52524.50 | 24.50 | 0.00 | 0.00 | 1573.67 | 0.00 | 0.00 | 0.00 | 884.79 | 0.00 | 1090.40 | 7080.53 | 0.00 | 0.00 | -5990.03 |
| 525+25 | 52524.50 | 0.00 | 0.00 | 0.00 | 1658.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1090.40 | 7080.53 | 0.00 | 0.00 | -5990.03 |
| 525+50 | 52550.00 | 25.50 | 0.00 | 0.00 | 1823.35 | 0.00 | 0.00 | 0.00 | 1644.25 | 0.00 | 1090.40 | 8889.21 | 0.00 | 0.00 | -7798.71 |
| 526+00 | 52600.00 | 50.00 | 0.37 | 0.00 | 2850.73 | 0.00 | 0.34 | 0.00 | 4327.85 | 0.00 | 1090.74 | 13649.84 | 0.00 | 0.00 | -12559.00 |
| 526+50 | 52650.00 | 50.00 | 0.00 | 0.00 | 2440.74 | 0.00 | 0.34 | 0.00 | 4899.51 | 0.00 | 1091.09 | 19039.30 | 0.00 | 0.00 | -17948.12 |
| 526+74 | 52674.00 | 24.00 | 0.00 | 0.00 | 3641.37 | 0.00 | 0.00 | 0.00 | 2703.16 | 0.00 | 1091.09 | 22012.78 | 0.00 | 0.00 | -20921.59 |
| 526+74 | 52674.00 | 0.00 | 0.00 | 0.00 | 2400.31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1091.09 | 22012.78 | 0.00 | 0.00 | -20921.59 |
| 527+00 BK | 52700.00 | 26.00 | 0.00 | 0.00 | 2272.95 | 0.00 | 0.00 | 0.00 | 2250.09 | 0.00 | 1091.09 | 24487.88 | 0.00 | 0.00 | -23396.69 |
| 531+50 AH | 53150.00 | 0.00 | 66.64 | 0.00 | 1151.76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 532+00 | 53200.00 | 50.00 | 40.40 | 0.00 | 470.19 | 0.00 | 99.11 | 0.00 | 1501.81 | 0.00 | 99.11 | 1651.99 | 0.00 | 0.00 | -1552.88 |
| 532+50 | 53250.00 | 50.00 | 62.91 | 0.00 | 509.86 | 0.00 | 95.66 | 0.00 | 907.45 | 0.00 | 194.77 | 2650.19 | 0.00 | 0.00 | -2455.42 |
| 533+00 | 53300.00 | 50.00 | 145.97 | 0.00 | 506.87 | 0.00 | 193.41 | 0.00 | 941.42 | 0.00 | 388.18 | 3685.74 | 0.00 | 0.00 | -3297.57 |
| 533+34 | 53333.63 | 33.63 | 211.33 | 0.00 | 716.97 | 0.00 | 222.52 | 0.00 | 762.18 | 0.00 | 610.69 | 4524.14 | 0.00 | 0.00 | -3913.45 |
| 533+34 | 53333.63 | 0.00 | 211.68 | 0.00 | 701.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 610.69 | 4524.14 | 0.00 | 0.00 | -3913.45 |
| 533+50 | 53350.00 | 16.37 | 292.15 | 0.00 | 478.96 | 0.00 | 152.74 | 0.00 | 357.73 | 0.00 | 763.43 | 4917.64 | 0.00 | 0.00 | -4154.21 |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4772
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 6 RAMP EN**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 534+00 | 53400.00 | 50.00 | 390.60 | 0.00 | 0.00 | 0.00 | 632.18 | 0.00 | 443.48 | 0.00 | 1395.61 | 5405.47 | 0.00 | 0.00 | -4009.87 |
| 534+50 | 53450.00 | 50.00 | 398.86 | 0.00 | 484.93 | 0.00 | 730.98 | 0.00 | 449.01 | 0.00 | 2126.59 | 5899.38 | 0.00 | 0.00 | -3772.79 |
| 535+00 | 53500.00 | 50.00 | 146.59 | 0.00 | 564.20 | 0.00 | 505.05 | 0.00 | 971.42 | 0.00 | 2631.63 | 6967.94 | 0.00 | 0.00 | -4336.31 |
| 535+50 | 53550.00 | 50.00 | 207.67 | 0.00 | 309.68 | 0.00 | 328.02 | 0.00 | 809.15 | 0.00 | 2959.65 | 7858.00 | 0.00 | 0.00 | -4898.35 |
| 536+00 | 53600.00 | 50.00 | 250.30 | 0.00 | 53.43 | 0.00 | 424.05 | 0.00 | 336.21 | 0.00 | 3383.70 | 8227.84 | 0.00 | 0.00 | -4844.14 |
| 536+50 | 53650.00 | 50.00 | 283.88 | 0.00 | 0.00 | 0.00 | 494.61 | 0.00 | 49.47 | 0.00 | 3878.31 | 8282.26 | 0.00 | 0.00 | -4403.95 |
| 537+00 | 53700.00 | 50.00 | 352.10 | 0.00 | 0.00 | 0.00 | 588.87 | 0.00 | 0.00 | 0.00 | 4467.18 | 8282.26 | 0.00 | 0.00 | -3815.08 |
| 537+50 | 53750.00 | 50.00 | 388.87 | 0.00 | 0.00 | 0.00 | 686.08 | 0.00 | 0.00 | 0.00 | 5153.26 | 8282.26 | 0.00 | 0.00 | -3128.99 |
| 538+00 | 53800.00 | 50.00 | 409.99 | 0.00 | 0.00 | 0.00 | 739.69 | 0.00 | 0.00 | 0.00 | 5892.95 | 8282.26 | 0.00 | 0.00 | -2389.31 |
| 538+50 | 53850.00 | 50.00 | 438.42 | 0.00 | 0.00 | 0.00 | 785.56 | 0.00 | 0.00 | 0.00 | 6678.51 | 8282.26 | 0.00 | 0.00 | -1603.74 |
| 539+00 | 53900.00 | 50.00 | 455.63 | 0.00 | 0.00 | 0.00 | 827.82 | 0.00 | 0.00 | 0.00 | 7506.34 | 8282.26 | 0.00 | 0.00 | -775.92 |
| 539+50 | 53950.00 | 50.00 | 481.64 | 0.00 | 0.00 | 0.00 | 867.84 | 0.00 | 0.00 | 0.00 | 8374.18 | 8282.26 | 0.00 | 0.00 | 91.92 |
| 540+00 | 54000.00 | 50.00 | 494.61 | 0.00 | 0.00 | 0.00 | 903.94 | 0.00 | 0.00 | 0.00 | 9278.11 | 8282.26 | 0.00 | 0.00 | 995.86 |
| 540+50 | 54050.00 | 50.00 | 492.02 | 0.00 | 0.00 | 0.00 | 913.55 | 0.00 | 0.00 | 0.00 | 10191.66 | 8282.26 | 0.00 | 0.00 | 1909.40 |
| 541+00 | 54100.00 | 50.00 | 478.61 | 0.00 | 0.00 | 0.00 | 898.73 | 0.00 | 0.00 | 0.00 | 11090.39 | 8282.26 | 0.00 | 0.00 | 2808.14 |
| 541+00 | 54100.00 | 0.00 | 214.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 11090.39 | 8282.26 | 0.00 | 0.00 | 2808.14 |
| 541+50 | 54150.00 | 50.00 | 252.40 | 0.00 | 0.00 | 0.00 | 432.29 | 0.00 | 0.00 | 0.00 | 11522.68 | 8282.26 | 0.00 | 0.00 | 3240.42 |
| 542+00 BK | 54200.00 | 50.00 | 423.64 | 0.00 | 0.00 | 0.00 | 625.96 | 0.00 | 0.00 | 0.00 | 12148.64 | 8282.26 | 0.00 | 0.00 | 3866.39 |
| | | | | | | Column totals | 13238.73 | 0.00 | 29790.03 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4773
September 14, 2015

**Division 6 RAMP SE**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 581+32 AH | 58131.98 | 0.00 | 27.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 581+50 | 58150.00 | 18.02 | 0.74 | 0.00 | 0.59 | 0.00 | 9.32 | 0.00 | 0.20 | 0.00 | 9.32 | 0.22 | 0.00 | 0.00 | 9.10 |
| 582+00 | 58200.00 | 50.00 | 2.76 | 0.00 | 170.37 | 0.00 | 3.24 | 0.00 | 158.30 | 0.00 | 12.56 | 174.34 | 0.00 | 0.00 | -161.78 |
| 582+50 | 58250.00 | 50.00 | 6.85 | 0.00 | 296.11 | 0.00 | 8.90 | 0.00 | 431.93 | 0.00 | 21.46 | 649.46 | 0.00 | 0.00 | -628.00 |
| 583+00 | 58300.00 | 50.00 | 16.10 | 0.00 | 432.24 | 0.00 | 21.25 | 0.00 | 674.40 | 0.00 | 42.71 | 1391.30 | 0.00 | 0.00 | -1348.59 |
| 583+13 BK | 58313.00 | 13.00 | 22.34 | 0.00 | 219.67 | 0.00 | 9.25 | 0.00 | 156.94 | 0.00 | 30.71 | 1563.93 | 0.00 | 0.00 | -1511.97 |
| 587+07 AH | 58707.00 | 0.00 | 0.00 | 0.00 | 313.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 587+50 | 58750.00 | 43.00 | 0.00 | 0.00 | 456.07 | 0.00 | 0.00 | 0.00 | 612.41 | 0.00 | 0.00 | 673.65 | 0.00 | 0.00 | -673.65 |
| 588+00 | 58800.00 | 50.00 | 0.00 | 0.00 | 456.94 | 0.00 | 0.00 | 0.00 | 845.38 | 0.00 | 0.00 | 1603.57 | 0.00 | 0.00 | -1603.57 |
| 588+50 | 58850.00 | 50.00 | 0.00 | 0.00 | 455.37 | 0.00 | 0.00 | 0.00 | 844.73 | 0.00 | 0.00 | 2532.77 | 0.00 | 0.00 | -2532.77 |
| 589+00 | 58900.00 | 50.00 | 0.00 | 0.00 | 449.17 | 0.00 | 0.00 | 0.00 | 837.54 | 0.00 | 0.00 | 3454.06 | 0.00 | 0.00 | -3454.06 |
| 589+50 | 58950.00 | 50.00 | 0.00 | 0.00 | 436.91 | 0.00 | 0.00 | 0.00 | 820.44 | 0.00 | 0.00 | 4356.55 | 0.00 | 0.00 | -4356.55 |
| 590+00 | 59000.00 | 50.00 | 1.99 | 0.00 | 1627.43 | 0.00 | 1.84 | 0.00 | 1911.43 | 0.00 | 1.84 | 6459.12 | 0.00 | 0.00 | -6457.28 |
| 590+50 | 59050.00 | 50.00 | 0.08 | 0.00 | 1598.88 | 0.00 | 1.92 | 0.00 | 2987.32 | 0.00 | 3.76 | 9745.18 | 0.00 | 0.00 | -9741.42 |
| 591+00 | 59100.00 | 50.00 | 0.21 | 0.00 | 1786.64 | 0.00 | 0.27 | 0.00 | 3134.74 | 0.00 | 4.03 | 13193.39 | 0.00 | 0.00 | -13189.36 |
| 591+50 | 59150.00 | 50.00 | 0.57 | 0.00 | 1863.53 | 0.00 | 0.72 | 0.00 | 3379.79 | 0.00 | 4.75 | 16911.16 | 0.00 | 0.00 | -16906.41 |
| 592+00 | 59200.00 | 50.00 | 0.37 | 0.00 | 2447.64 | 0.00 | 0.87 | 0.00 | 3991.82 | 0.00 | 5.62 | 21302.16 | 0.00 | 0.00 | -21296.54 |
| 592+50 | 59250.00 | 50.00 | 0.00 | 0.00 | 2484.80 | 0.00 | 0.34 | 0.00 | 4567.07 | 0.00 | 5.96 | 26325.94 | 0.00 | 0.00 | -26319.98 |
| 593+00 | 59300.00 | 50.00 | 0.00 | 0.00 | 1533.47 | 0.00 | 0.00 | 0.00 | 3720.62 | 0.00 | 5.96 | 30418.63 | 0.00 | 0.00 | -30412.66 |
| 593+50 | 59350.00 | 50.00 | 16.75 | 0.00 | 596.73 | 0.00 | 15.51 | 0.00 | 1972.41 | 0.00 | 21.47 | 32588.27 | 0.00 | 0.00 | -32566.80 |
| 594+00 | 59400.00 | 50.00 | 59.05 | 0.00 | 482.92 | 0.00 | 70.19 | 0.00 | 999.68 | 0.00 | 91.66 | 33687.92 | 0.00 | 0.00 | -33596.26 |
| 594+05 BK | 59404.72 | 4.72 | 63.77 | 0.00 | 340.57 | 0.00 | 10.74 | 0.00 | 71.98 | 0.00 | 102.39 | 33767.09 | 0.00 | 0.00 | -33664.70 |
| | | | | | Column totals | | 154.36 | 0.00 | 32119.12 | 0.00 | | | | | |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4774
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

**Division 6 RAMP ES**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 572+01 AH | 57200.93 | 0.00 | 0.00 | 0.00 | 63.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 572+50 | 57250.00 | 49.07 | 0.00 | 0.00 | 73.13 | 0.00 | 0.00 | 0.00 | 123.85 | 0.00 | 0.00 | 136.23 | 0.00 | 0.00 | -136.23 |
| 573+00 | 57300.00 | 50.00 | 0.00 | 0.00 | 89.26 | 0.00 | 0.00 | 0.00 | 150.36 | 0.00 | 0.00 | 301.63 | 0.00 | 0.00 | -301.63 |
| 573+50 | 57350.00 | 50.00 | 0.00 | 0.00 | 109.12 | 0.00 | 0.00 | 0.00 | 183.69 | 0.00 | 0.00 | 503.68 | 0.00 | 0.00 | -503.68 |
| 574+00 | 57400.00 | 50.00 | 0.00 | 0.00 | 142.11 | 0.00 | 0.00 | 0.00 | 232.62 | 0.00 | 0.00 | 759.57 | 0.00 | 0.00 | -759.57 |
| 574+50 | 57450.00 | 50.00 | 0.00 | 0.00 | 173.30 | 0.00 | 0.00 | 0.00 | 292.05 | 0.00 | 0.00 | 1080.82 | 0.00 | 0.00 | -1080.82 |
| 575+00 | 57500.00 | 50.00 | 34.01 | 0.00 | 146.40 | 0.00 | 31.49 | 0.00 | 296.02 | 0.00 | 31.49 | 1406.44 | 0.00 | 0.00 | -1374.95 |
| 575+50 | 57550.00 | 50.00 | 88.00 | 0.00 | 0.00 | 0.00 | 112.97 | 0.00 | 135.56 | 0.00 | 144.46 | 1555.55 | 0.00 | 0.00 | -1411.08 |
| 576+00 | 57600.00 | 50.00 | 95.00 | 0.00 | 0.00 | 0.00 | 169.44 | 0.00 | 0.00 | 0.00 | 313.91 | 1555.55 | 0.00 | 0.00 | -1241.64 |
| 576+50 | 57650.00 | 50.00 | 100.00 | 0.00 | 0.00 | 0.00 | 180.56 | 0.00 | 0.00 | 0.00 | 494.46 | 1555.55 | 0.00 | 0.00 | -1061.08 |
| 577+00 | 57700.00 | 50.00 | 78.00 | 0.00 | 0.00 | 0.00 | 164.81 | 0.00 | 0.00 | 0.00 | 659.28 | 1555.55 | 0.00 | 0.00 | -896.27 |
| 577+50 | 57750.00 | 50.00 | 84.00 | 0.00 | 0.00 | 0.00 | 150.00 | 0.00 | 0.00 | 0.00 | 809.28 | 1555.55 | 0.00 | 0.00 | -746.27 |
| 578+00 | 57800.00 | 50.00 | 82.00 | 0.00 | 0.00 | 0.00 | 153.70 | 0.00 | 0.00 | 0.00 | 962.98 | 1555.55 | 0.00 | 0.00 | -592.57 |
| 578+50 | 57850.00 | 50.00 | 83.00 | 0.00 | 0.00 | 0.00 | 152.78 | 0.00 | 0.00 | 0.00 | 1115.76 | 1555.55 | 0.00 | 0.00 | -439.79 |
| 579+00 | 57900.00 | 50.00 | 89.00 | 0.00 | 0.00 | 0.00 | 159.26 | 0.00 | 0.00 | 0.00 | 1275.02 | 1555.55 | 0.00 | 0.00 | -280.53 |
| 579+43 BK | 57943.00 | 43.00 | 94.00 | 0.00 | 0.00 | 0.00 | 145.72 | 0.00 | 0.00 | 0.00 | 1420.74 | 1555.55 | 0.00 | 0.00 | -134.81 |
| | | | | | Column totals | | 1420.74 | 0.00 | 1414.13 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4775
September 14, 2015

9

9

PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4775 | E

**Division 6 RAMP ES**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 604+12 AH | 60412.00 | 0.00 | 42.96 | 0.00 | 278.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 604+50 | 60450.00 | 38.00 | 34.96 | 0.00 | 1252.96 | 0.00 | 54.83 | 0.00 | 1077.55 | 0.00 | 54.83 | 1185.31 | 0.00 | 0.00 | -1130.48 |
| 605+00 | 60500.00 | 50.00 | 0.00 | 0.00 | 990.81 | 0.00 | 32.37 | 0.00 | 2077.56 | 0.00 | 87.20 | 3470.63 | 0.00 | 0.00 | -3383.43 |
| 605+50 | 60550.00 | 50.00 | 0.00 | 0.00 | 926.15 | 0.00 | 0.00 | 0.00 | 1774.96 | 0.00 | 87.20 | 5423.09 | 0.00 | 0.00 | -5335.89 |
| 605+56 | 60556.00 | 6.00 | 0.00 | 0.00 | 1060.82 | 0.00 | 0.00 | 0.00 | 220.77 | 0.00 | 87.20 | 5665.94 | 0.00 | 0.00 | -5578.74 |
| 605+56 | 60556.00 | 0.00 | 0.00 | 0.00 | 1079.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 87.20 | 5665.94 | 0.00 | 0.00 | -5578.74 |
| 606+00 | 60600.00 | 44.00 | 0.00 | 0.00 | 850.09 | 0.00 | 0.00 | 0.00 | 1572.52 | 0.00 | 87.20 | 7395.71 | 0.00 | 0.00 | -7308.51 |
| 606+50 | 60650.00 | 50.00 | 0.00 | 0.00 | 589.67 | 0.00 | 0.00 | 0.00 | 1333.11 | 0.00 | 87.20 | 8862.13 | 0.00 | 0.00 | -8774.93 |
| 607+00 | 60700.00 | 50.00 | 0.00 | 0.00 | 433.19 | 0.00 | 0.00 | 0.00 | 947.09 | 0.00 | 87.20 | 9903.94 | 0.00 | 0.00 | -9816.73 |
| 607+16 BK | 60716.20 | 16.20 | 0.00 | 0.00 | 388.74 | 0.00 | 0.00 | 0.00 | 246.58 | 0.00 | 87.20 | 10175.17 | 0.00 | 0.00 | -10087.97 |
| | | | | | Column totals | | 87.20 | 0.00 | 9250.16 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4776
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:36 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew151 PLOT SCALE : 1:1

**Division 6 RAMP LD**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 711+00 AH | 71100.00 | 0.00 | 70.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 711+50 | 71150.00 | 50.00 | 131.64 | 0.00 | 0.00 | 0.00 | 187.50 | 0.00 | 0.00 | 0.00 | 187.50 | 0.00 | 0.00 | 0.00 | 187.50 |
| 712+00 | 71200.00 | 50.00 | 190.22 | 0.00 | 0.00 | 0.00 | 298.02 | 0.00 | 0.00 | 0.00 | 485.52 | 0.00 | 0.00 | 0.00 | 485.52 |
| 712+50 | 71250.00 | 50.00 | 214.80 | 0.00 | 0.00 | 0.00 | 375.02 | 0.00 | 0.00 | 0.00 | 860.54 | 0.00 | 0.00 | 0.00 | 860.54 |
| 712+62 BK | 71262.48 | 12.48 | 212.35 | 0.00 | 0.00 | 0.00 | 98.72 | 0.00 | 0.00 | 0.00 | 959.26 | 0.00 | 0.00 | 0.00 | 959.26 |
| | | | | | Column totals | | 959.26 | 0.00 | 0.00 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4777
September 14, 2015

**Division 6 RAMP GC**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 738+46 AH | 73846.04 | 0.00 | 0.00 | 0.00 | 196.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 738+50 | 73850.00 | 3.96 | 0.00 | 0.00 | 197.99 | 0.00 | 0.00 | 0.00 | 28.91 | 0.00 | 0.00 | 31.80 | 0.00 | 0.00 | -31.80 |
| 739+00 | 73900.00 | 50.00 | 0.00 | 0.00 | 210.65 | 0.00 | 0.00 | 0.00 | 378.37 | 0.00 | 0.00 | 448.01 | 0.00 | 0.00 | -448.01 |
| 739+50 | 73950.00 | 50.00 | 0.00 | 0.00 | 194.47 | 0.00 | 0.00 | 0.00 | 375.11 | 0.00 | 0.00 | 860.63 | 0.00 | 0.00 | -860.63 |
| 740+00 | 74000.00 | 50.00 | 0.00 | 0.00 | 195.01 | 0.00 | 0.00 | 0.00 | 360.63 | 0.00 | 0.00 | 1257.32 | 0.00 | 0.00 | -1257.32 |
| 740+50 | 74050.00 | 50.00 | 0.00 | 0.00 | 123.96 | 0.00 | 0.00 | 0.00 | 295.34 | 0.00 | 0.00 | 1582.20 | 0.00 | 0.00 | -1582.20 |
| 741+00 | 74100.00 | 50.00 | 3.64 | 0.00 | 76.01 | 0.00 | 3.37 | 0.00 | 185.16 | 0.00 | 3.37 | 1785.87 | 0.00 | 0.00 | -1782.50 |
| 741+50 | 74150.00 | 50.00 | 26.71 | 0.00 | 29.48 | 0.00 | 28.10 | 0.00 | 97.68 | 0.00 | 31.47 | 1893.32 | 0.00 | 0.00 | -1861.84 |
| 741+80 | 74180.00 | 30.00 | 53.23 | 0.00 | 18.81 | 0.00 | 44.41 | 0.00 | 26.83 | 0.00 | 75.88 | 1922.83 | 0.00 | 0.00 | -1846.94 |
| 741+80 | 74180.00 | 0.00 | 47.06 | 0.00 | 24.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75.88 | 1922.83 | 0.00 | 0.00 | -1846.94 |
| 742+00 | 74200.00 | 20.00 | 75.13 | 0.00 | 13.31 | 0.00 | 45.26 | 0.00 | 13.90 | 0.00 | 121.14 | 1938.12 | 0.00 | 0.00 | -1816.98 |
| 742+50 | 74250.00 | 50.00 | 148.14 | 0.00 | 9.16 | 0.00 | 206.73 | 0.00 | 20.81 | 0.00 | 327.87 | 1961.01 | 0.00 | 0.00 | -1633.14 |
| 743+00 | 74300.00 | 50.00 | 181.58 | 0.00 | 11.26 | 0.00 | 305.30 | 0.00 | 18.91 | 0.00 | 633.17 | 1981.81 | 0.00 | 0.00 | -1348.64 |
| 743+50 | 74350.00 | 50.00 | 211.05 | 0.00 | 15.52 | 0.00 | 363.55 | 0.00 | 24.80 | 0.00 | 996.71 | 2009.08 | 0.00 | 0.00 | -1012.37 |
| 744+00 | 74400.00 | 50.00 | 255.64 | 0.00 | 15.95 | 0.00 | 432.12 | 0.00 | 29.14 | 0.00 | 1428.83 | 2041.13 | 0.00 | 0.00 | -612.30 |
| 744+50 | 74450.00 | 50.00 | 292.40 | 0.00 | 12.15 | 0.00 | 507.44 | 0.00 | 26.02 | 0.00 | 1936.28 | 2069.75 | 0.00 | 0.00 | -133.48 |
| 745+00 | 74500.00 | 50.00 | 302.57 | 0.00 | 18.68 | 0.00 | 550.90 | 0.00 | 28.55 | 0.00 | 2487.18 | 2101.16 | 0.00 | 0.00 | 386.02 |
| 745+50 | 74550.00 | 50.00 | 308.82 | 0.00 | 23.68 | 0.00 | 566.10 | 0.00 | 39.22 | 0.00 | 3053.28 | 2144.30 | 0.00 | 0.00 | 908.98 |
| 746+00 | 74600.00 | 50.00 | 321.31 | 0.00 | 25.64 | 0.00 | 583.45 | 0.00 | 45.67 | 0.00 | 3636.73 | 2194.53 | 0.00 | 0.00 | 1442.20 |
| 746+50 | 74650.00 | 50.00 | 311.66 | 0.00 | 20.82 | 0.00 | 586.08 | 0.00 | 43.02 | 0.00 | 4222.81 | 2241.85 | 0.00 | 0.00 | 1980.96 |
| 747+00 | 74700.00 | 50.00 | 319.04 | 0.00 | 9.53 | 0.00 | 583.98 | 0.00 | 28.10 | 0.00 | 4806.80 | 2272.77 | 0.00 | 0.00 | 2534.03 |
| 747+50 | 74750.00 | 50.00 | 336.39 | 0.00 | 4.80 | 0.00 | 606.88 | 0.00 | 13.27 | 0.00 | 5413.68 | 2287.36 | 0.00 | 0.00 | 3126.32 |
| 748+00 | 74800.00 | 50.00 | 315.14 | 0.00 | 2.80 | 0.00 | 603.27 | 0.00 | 7.04 | 0.00 | 6016.94 | 2295.10 | 0.00 | 0.00 | 3721.84 |
| 748+50 | 74850.00 | 50.00 | 293.57 | 0.00 | 7.18 | 0.00 | 563.62 | 0.00 | 9.24 | 0.00 | 6580.56 | 2305.27 | 0.00 | 0.00 | 4275.30 |
| 749+00 | 74900.00 | 50.00 | 286.80 | 0.00 | 6.81 | 0.00 | 537.38 | 0.00 | 12.95 | 0.00 | 7117.94 | 2319.52 | 0.00 | 0.00 | 4798.43 |
| 749+50 | 74950.00 | 50.00 | 241.49 | 0.00 | 9.40 | 0.00 | 489.16 | 0.00 | 15.01 | 0.00 | 7607.10 | 2336.03 | 0.00 | 0.00 | 5271.08 |
| 750+00 | 75000.00 | 50.00 | 184.92 | 0.00 | 10.27 | 0.00 | 394.82 | 0.00 | 18.21 | 0.00 | 8001.93 | 2356.06 | 0.00 | 0.00 | 5645.87 |
| 750+50 | 75050.00 | 50.00 | 131.37 | 0.00 | 10.87 | 0.00 | 292.86 | 0.00 | 19.57 | 0.00 | 8294.79 | 2377.59 | 0.00 | 0.00 | 5917.20 |
| 751+00 | 75100.00 | 50.00 | 131.57 | 0.00 | 10.56 | 0.00 | 243.46 | 0.00 | 19.84 | 0.00 | 8538.25 | 2399.42 | 0.00 | 0.00 | 6138.83 |
| 751+50 | 75150.00 | 50.00 | 141.10 | 0.00 | 9.94 | 0.00 | 252.47 | 0.00 | 18.98 | 0.00 | 8790.72 | 2420.30 | 0.00 | 0.00 | 6370.42 |
| 751+71 BK | 75171.29 | 21.29 | 152.02 | 0.00 | 5.21 | 0.00 | 115.57 | 0.00 | 5.97 | 0.00 | 8906.29 | 2426.87 | 0.00 | 0.00 | 6479.42 |
| | | | | | | Column totals | 8906.29 | 0.00 | 2206.24 | 0.00 | | | | | |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4778
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

**Division 6 RAMP GD**

| STATION | Real Station | Distance | AREA (SF) | | | | Incremental Vol (CY) (Unadjusted) | | | | Cumulative Vol (CY) | | | | Mass |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Expanded Fill | Expanded EBS Backfill | Reduced EBS In Fill | Ordinate |
| | | | | | | | Note 1 | Note 2 | Note 3 | | 1.00 Note 1 | 1.1 | 1.30 Note 4 | 0.80 Note 5 | Note 6 |
| 755+28 AH | 75527.51 | 0.00 | 180.47 | 0.00 | 8.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 755+50 | 75550.00 | 22.49 | 142.98 | 0.00 | 7.88 | 0.00 | 134.71 | 0.00 | 6.83 | 0.00 | 134.71 | 7.51 | 0.00 | 0.00 | 127.20 |
| 756+00 | 75600.00 | 50.00 | 137.84 | 0.00 | 5.99 | 0.00 | 260.02 | 0.00 | 12.84 | 0.00 | 394.73 | 21.64 | 0.00 | 0.00 | 373.09 |
| 756+50 | 75650.00 | 50.00 | 136.10 | 0.00 | 3.06 | 0.00 | 253.65 | 0.00 | 8.38 | 0.00 | 648.38 | 30.85 | 0.00 | 0.00 | 617.52 |
| 757+00 | 75700.00 | 50.00 | 135.64 | 0.00 | 0.15 | 0.00 | 251.61 | 0.00 | 2.97 | 0.00 | 899.99 | 34.12 | 0.00 | 0.00 | 865.87 |
| 757+50 | 75750.00 | 50.00 | 142.13 | 0.00 | 1.28 | 0.00 | 257.19 | 0.00 | 1.32 | 0.00 | 1157.18 | 35.58 | 0.00 | 0.00 | 1121.60 |
| 758+00 | 75800.00 | 50.00 | 140.78 | 0.00 | 3.98 | 0.00 | 261.95 | 0.00 | 4.87 | 0.00 | 1419.14 | 40.94 | 0.00 | 0.00 | 1378.20 |
| 758+50 | 75850.00 | 50.00 | 152.89 | 0.00 | 9.30 | 0.00 | 271.92 | 0.00 | 12.30 | 0.00 | 1691.05 | 54.46 | 0.00 | 0.00 | 1636.59 |
| 759+00 | 75900.00 | 50.00 | 255.49 | 0.00 | 14.63 | 0.00 | 378.13 | 0.00 | 22.16 | 0.00 | 2069.18 | 78.84 | 0.00 | 0.00 | 1990.35 |
| 759+50 | 75950.00 | 50.00 | 278.65 | 0.00 | 13.18 | 0.00 | 494.57 | 0.00 | 25.75 | 0.00 | 2563.76 | 107.16 | 0.00 | 0.00 | 2456.60 |
| 760+00 | 76000.00 | 50.00 | 280.75 | 0.00 | 2.75 | 0.00 | 517.96 | 0.00 | 14.75 | 0.00 | 3081.72 | 123.39 | 0.00 | 0.00 | 2958.33 |
| 760+50 | 76050.00 | 50.00 | 199.50 | 0.00 | 7.81 | 0.00 | 444.68 | 0.00 | 9.78 | 0.00 | 3526.40 | 134.14 | 0.00 | 0.00 | 3392.25 |
| 761+00 | 76100.00 | 50.00 | 139.72 | 0.00 | 4.81 | 0.00 | 314.09 | 0.00 | 11.69 | 0.00 | 3840.49 | 146.99 | 0.00 | 0.00 | 3693.49 |
| 761+11 | 76111.00 | 11.00 | 128.99 | 0.00 | 3.99 | 0.00 | 54.74 | 0.00 | 1.79 | 0.00 | 3895.23 | 148.97 | 0.00 | 0.00 | 3746.26 |
| 761+11 | 76111.00 | 0.00 | 64.60 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3895.23 | 148.97 | 0.00 | 0.00 | 3746.26 |
| 761+50 | 76150.00 | 39.00 | 40.45 | 0.00 | 1.41 | 0.00 | 75.87 | 0.00 | 1.03 | 0.00 | 3971.10 | 150.09 | 0.00 | 0.00 | 3821.00 |
| 762+00 | 76200.00 | 50.00 | 165.33 | 0.00 | 10.20 | 0.00 | 190.54 | 0.00 | 10.75 | 0.00 | 4161.63 | 161.92 | 0.00 | 0.00 | 3999.71 |
| 762+50 | 76250.00 | 50.00 | 170.11 | 0.00 | 4.00 | 0.00 | 310.59 | 0.00 | 13.15 | 0.00 | 4472.23 | 176.38 | 0.00 | 0.00 | 4295.84 |
| 763+00 | 76300.00 | 50.00 | 181.41 | 0.00 | 0.00 | 0.00 | 325.48 | 0.00 | 3.70 | 0.00 | 4797.71 | 180.46 | 0.00 | 0.00 | 4617.25 |
| 763+50 | 76350.00 | 50.00 | 204.97 | 0.00 | 0.00 | 0.00 | 357.76 | 0.00 | 0.00 | 0.00 | 5155.47 | 180.46 | 0.00 | 0.00 | 4975.01 |
| 764+00 | 76400.00 | 50.00 | 192.00 | 0.00 | 0.00 | 0.00 | 367.56 | 0.00 | 0.00 | 0.00 | 5523.03 | 180.46 | 0.00 | 0.00 | 5342.57 |
| 764+50 | 76450.00 | 50.00 | 197.12 | 0.00 | 0.00 | 0.00 | 360.30 | 0.00 | 0.00 | 0.00 | 5883.33 | 180.46 | 0.00 | 0.00 | 5702.87 |
| 765+00 | 76500.00 | 50.00 | 219.33 | 0.00 | 1.53 | 0.00 | 385.60 | 0.00 | 1.42 | 0.00 | 6268.93 | 182.02 | 0.00 | 0.00 | 6086.91 |
| 765+50 | 76550.00 | 50.00 | 221.06 | 0.00 | 8.08 | 0.00 | 407.77 | 0.00 | 8.90 | 0.00 | 6676.70 | 191.80 | 0.00 | 0.00 | 6484.89 |
| 766+00 | 76600.00 | 50.00 | 211.11 | 0.00 | 0.00 | 0.00 | 400.16 | 0.00 | 7.48 | 0.00 | 7076.85 | 200.03 | 0.00 | 0.00 | 6876.82 |
| 766+50 | 76650.00 | 50.00 | 16.83 | 0.00 | 39.70 | 0.00 | 211.06 | 0.00 | 36.76 | 0.00 | 7287.91 | 240.47 | 0.00 | 0.00 | 7047.44 |
| 767+00 | 76700.00 | 50.00 | 20.86 | 0.00 | 39.82 | 0.00 | 34.90 | 0.00 | 73.63 | 0.00 | 7322.81 | 321.46 | 0.00 | 0.00 | 7001.35 |
| 767+50 | 76750.00 | 50.00 | 11.91 | 0.00 | 44.55 | 0.00 | 30.34 | 0.00 | 78.12 | 0.00 | 7353.15 | 407.39 | 0.00 | 0.00 | 6945.76 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4779
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 6 RAMP GD**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 768+00 | 76800.00 | 50.00 | 0.01 | 0.00 | 42.38 | 0.00 | 11.04 | 0.00 | 80.49 | 0.00 | 7364.19 | 495.93 | 0.00 | 0.00 | 6868.26 |
| 768+50 | 76850.00 | 50.00 | 0.00 | 0.00 | 43.82 | 0.00 | 0.01 | 0.00 | 79.81 | 0.00 | 7364.20 | 583.73 | 0.00 | 0.00 | 6780.47 |
| 769+00 | 76900.00 | 50.00 | 0.00 | 0.00 | 46.01 | 0.00 | 0.00 | 0.00 | 83.18 | 0.00 | 7364.20 | 675.22 | 0.00 | 0.00 | 6688.97 |
| 769+50 | 76950.00 | 50.00 | 0.01 | 0.00 | 51.02 | 0.00 | 0.01 | 0.00 | 89.84 | 0.00 | 7364.21 | 774.05 | 0.00 | 0.00 | 6590.16 |
| 770+00 | 77000.00 | 50.00 | 0.00 | 0.00 | 49.48 | 0.00 | 0.01 | 0.00 | 93.06 | 0.00 | 7364.22 | 876.41 | 0.00 | 0.00 | 6487.81 |
| 770+50 | 77050.00 | 50.00 | 0.00 | 0.00 | 51.92 | 0.00 | 0.00 | 0.00 | 93.89 | 0.00 | 7364.22 | 979.69 | 0.00 | 0.00 | 6384.53 |
| 771+00 | 77100.00 | 50.00 | 0.00 | 0.00 | 54.60 | 0.00 | 0.00 | 0.00 | 98.63 | 0.00 | 7364.22 | 1088.18 | 0.00 | 0.00 | 6276.03 |
| 771+50 | 77150.00 | 50.00 | 0.00 | 0.00 | 52.53 | 0.00 | 0.00 | 0.00 | 99.19 | 0.00 | 7364.22 | 1197.29 | 0.00 | 0.00 | 6166.92 |
| 772+00 | 77200.00 | 50.00 | 0.65 | 0.00 | 31.01 | 0.00 | 0.60 | 0.00 | 77.35 | 0.00 | 7364.82 | 1282.38 | 0.00 | 0.00 | 6082.44 |
| 772+50 | 77250.00 | 50.00 | 0.64 | 0.00 | 27.86 | 0.00 | 1.19 | 0.00 | 54.51 | 0.00 | 7366.01 | 1342.34 | 0.00 | 0.00 | 6023.67 |
| 773+00 | 77300.00 | 50.00 | 0.64 | 0.00 | 23.28 | 0.00 | 1.19 | 0.00 | 47.35 | 0.00 | 7367.20 | 1394.43 | 0.00 | 0.00 | 5972.77 |
| 773+50 | 77350.00 | 50.00 | 0.64 | 0.00 | 18.06 | 0.00 | 1.19 | 0.00 | 38.28 | 0.00 | 7368.38 | 1436.53 | 0.00 | 0.00 | 5931.85 |
| 774+00 | 77400.00 | 50.00 | 4.82 | 0.00 | 13.44 | 0.00 | 5.06 | 0.00 | 29.17 | 0.00 | 7373.44 | 1468.62 | 0.00 | 0.00 | 5904.82 |
| 774+50 | 77450.00 | 50.00 | 55.59 | 0.00 | 0.12 | 0.00 | 55.94 | 0.00 | 12.56 | 0.00 | 7429.37 | 1482.43 | 0.00 | 0.00 | 5946.94 |
| 775+00 | 77500.00 | 50.00 | 100.58 | 0.00 | 0.12 | 0.00 | 144.60 | 0.00 | 0.22 | 0.00 | 7573.98 | 1482.67 | 0.00 | 0.00 | 6091.30 |
| 775+50 | 77550.00 | 50.00 | 101.84 | 0.00 | 0.11 | 0.00 | 187.43 | 0.00 | 0.21 | 0.00 | 7761.40 | 1482.91 | 0.00 | 0.00 | 6278.49 |
| 776+00 | 77600.00 | 50.00 | 106.99 | 0.00 | 0.11 | 0.00 | 193.36 | 0.00 | 0.20 | 0.00 | 7954.76 | 1483.13 | 0.00 | 0.00 | 6471.63 |
| 776+50 | 77650.00 | 50.00 | 117.32 | 0.00 | 0.11 | 0.00 | 207.69 | 0.00 | 0.20 | 0.00 | 8162.46 | 1483.36 | 0.00 | 0.00 | 6679.10 |
| 777+00 | 77700.00 | 50.00 | 123.64 | 0.00 | 0.11 | 0.00 | 223.11 | 0.00 | 0.20 | 0.00 | 8385.57 | 1483.58 | 0.00 | 0.00 | 6901.99 |
| 777+50 | 77750.00 | 50.00 | 135.28 | 0.00 | 0.11 | 0.00 | 239.74 | 0.00 | 0.20 | 0.00 | 8625.31 | 1483.80 | 0.00 | 0.00 | 7141.50 |
| 778+00 | 77800.00 | 50.00 | 147.73 | 0.00 | 0.11 | 0.00 | 262.05 | 0.00 | 0.20 | 0.00 | 8887.35 | 1484.03 | 0.00 | 0.00 | 7403.33 |
| 778+50 | 77850.00 | 50.00 | 157.73 | 0.00 | 0.11 | 0.00 | 282.83 | 0.00 | 0.20 | 0.00 | 9170.19 | 1484.25 | 0.00 | 0.00 | 7685.94 |
| 779+00 | 77900.00 | 50.00 | 164.88 | 0.00 | 0.10 | 0.00 | 298.71 | 0.00 | 0.19 | 0.00 | 9468.90 | 1484.47 | 0.00 | 0.00 | 7984.43 |
| 779+50 | 77950.00 | 50.00 | 125.70 | 0.00 | 0.10 | 0.00 | 269.06 | 0.00 | 0.19 | 0.00 | 9737.96 | 1484.67 | 0.00 | 0.00 | 8253.29 |
| 779+74 BK | 77974.26 | 24.26 | 0.04 | 0.00 | 2.63 | 0.00 | 56.49 | 0.00 | 1.23 | 0.00 | 9794.45 | 1486.02 | 0.00 | 0.00 | 8308.43 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4780
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 6 RAMP GD**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 780+56 AH | 78055.76 | 0.00 | 0.00 | 0.00 | 1129.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 781+00 | 78100.00 | 44.24 | 0.00 | 0.00 | 1041.31 | 0.00 | 0.00 | 0.00 | 1778.78 | 0.00 | 0.00 | 1956.65 | 0.00 | 0.00 | -1956.65 |
| 781+50 | 78150.00 | 50.00 | 0.00 | 0.00 | 1070.96 | 0.00 | 0.00 | 0.00 | 1955.81 | 0.00 | 0.00 | 4108.04 | 0.00 | 0.00 | -4108.04 |
| 782+00 | 78200.00 | 50.00 | 0.00 | 0.00 | 1064.81 | 0.00 | 0.00 | 0.00 | 1977.56 | 0.00 | 0.00 | 6283.36 | 0.00 | 0.00 | -6283.36 |
| 782+50 | 78250.00 | 50.00 | 0.00 | 0.00 | 823.36 | 0.00 | 0.00 | 0.00 | 1748.31 | 0.00 | 0.00 | 8206.50 | 0.00 | 0.00 | -8206.50 |
| 783+00 | 78300.00 | 50.00 | 0.00 | 0.00 | 535.40 | 0.00 | 0.00 | 0.00 | 1258.11 | 0.00 | 0.00 | 9590.42 | 0.00 | 0.00 | -9590.42 |
| 783+50 | 78350.00 | 50.00 | 0.00 | 0.00 | 156.36 | 0.00 | 0.00 | 0.00 | 640.52 | 0.00 | 0.00 | 10294.99 | 0.00 | 0.00 | -10294.99 |
| 784+00 | 78400.00 | 50.00 | 102.14 | 0.00 | 39.66 | 0.00 | 94.57 | 0.00 | 181.50 | 0.00 | 94.57 | 10494.64 | 0.00 | 0.00 | -10400.07 |
| 784+50 | 78450.00 | 50.00 | 288.91 | 0.00 | 0.40 | 0.00 | 362.08 | 0.00 | 37.09 | 0.00 | 456.66 | 10535.44 | 0.00 | 0.00 | -10078.78 |
| 785+00 | 78500.00 | 50.00 | 304.32 | 0.00 | 0.00 | 0.00 | 549.29 | 0.00 | 0.37 | 0.00 | 1005.94 | 10535.85 | 0.00 | 0.00 | -9529.90 |
| 785+35 | 78534.66 | 34.66 | 0.20 | 0.00 | 96.14 | 0.00 | 195.46 | 0.00 | 61.71 | 0.00 | 1201.40 | 10603.73 | 0.00 | 0.00 | -9402.33 |
| 785+42 BK | 78541.89 | 7.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 12.87 | 0.00 | 1201.43 | 10617.89 | 0.00 | 0.00 | -9416.46 |
| 786+60 AH | 78660.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 786+67 | 78667.35 | 6.96 | 5.98 | 0.00 | 150.92 | 0.00 | 0.77 | 0.00 | 19.45 | 0.00 | 0.77 | 21.40 | 0.00 | 0.00 | -20.63 |
| 787+00 | 78700.00 | 32.65 | 638.41 | 0.00 | 30.32 | 0.00 | 389.62 | 0.00 | 109.58 | 0.00 | 390.39 | 141.94 | 0.00 | 0.00 | 248.45 |
| 787+50 | 78750.00 | 50.00 | 1691.37 | 0.00 | 18.28 | 0.00 | 2157.20 | 0.00 | 45.00 | 0.00 | 2547.59 | 191.44 | 0.00 | 0.00 | 2356.15 |
| 788+00 | 78800.00 | 50.00 | 1558.16 | 0.00 | 29.29 | 0.00 | 3008.82 | 0.00 | 44.05 | 0.00 | 5556.42 | 239.89 | 0.00 | 0.00 | 5316.53 |
| 788+43 | 78843.00 | 43.00 | 1500.64 | 0.00 | 16.80 | 0.00 | 2435.71 | 0.00 | 36.70 | 0.00 | 7992.13 | 280.26 | 0.00 | 0.00 | 7711.87 |
| 788+43 | 78843.00 | 0.00 | 1506.91 | 0.00 | 13.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7992.13 | 280.26 | 0.00 | 0.00 | 7711.87 |
| 788+50 | 78850.00 | 7.00 | 1514.73 | 0.00 | 13.79 | 0.00 | 391.69 | 0.00 | 3.50 | 0.00 | 8383.82 | 284.12 | 0.00 | 0.00 | 8099.71 |
| 789+00 | 78900.00 | 50.00 | 1268.65 | 0.00 | 10.33 | 0.00 | 2577.20 | 0.00 | 22.33 | 0.00 | 10961.02 | 308.68 | 0.00 | 0.00 | 10652.34 |
| 789+50 | 78950.00 | 50.00 | 286.73 | 0.00 | 806.40 | 0.00 | 1440.17 | 0.00 | 756.23 | 0.00 | 12401.19 | 1140.54 | 0.00 | 0.00 | 11260.65 |
| 790+00 | 79000.00 | 50.00 | 394.51 | 0.00 | 1888.29 | 0.00 | 630.78 | 0.00 | 2495.08 | 0.00 | 13031.97 | 3885.13 | 0.00 | 0.00 | 9146.84 |
| 790+50 | 79050.00 | 50.00 | 874.69 | 0.00 | 1379.56 | 0.00 | 1175.19 | 0.00 | 3025.79 | 0.00 | 14207.15 | 7213.49 | 0.00 | 0.00 | 6993.66 |
| 791+00 | 79100.00 | 50.00 | 652.41 | 0.00 | 582.74 | 0.00 | 1413.98 | 0.00 | 1816.94 | 0.00 | 15621.14 | 9212.13 | 0.00 | 0.00 | 6409.00 |
| 791+09 BK | 79108.56 | 8.56 | 574.26 | 0.00 | 550.25 | 0.00 | 194.45 | 0.00 | 179.60 | 0.00 | 15815.59 | 9409.69 | 0.00 | 0.00 | 6405.89 |
| | | | | | | Column totals | 26811.46 | 0.00 | 19557.82 | 0.00 | | | | | |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4781
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

**Division 6 RAMP GE**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Salvaged/ Unusable Pavement Material Note 2 | Fill Note 3 | EBS | Cumulative Vol (CY) Cut Note 1 | Expanded Fill 1.1 | Expanded EBS Backfill 1.30 Note 4 | Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 787+50 AH | 78750.00 | 0.00 | 0.00 | 0.00 | 796.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 788+00 | 78800.00 | 50.00 | 0.00 | 0.00 | 1185.88 | 0.00 | 0.00 | 0.00 | 1835.49 | 0.00 | 0.00 | 2019.04 | 0.00 | 0.00 | -2019.04 |
| 788+50 | 78850.00 | 50.00 | 0.00 | 0.00 | 1471.98 | 0.00 | 0.00 | 0.00 | 2460.98 | 0.00 | 0.00 | 4726.12 | 0.00 | 0.00 | -4726.12 |
| 789+00 | 78900.00 | 50.00 | 0.00 | 0.00 | 2074.27 | 0.00 | 0.00 | 0.00 | 3283.56 | 0.00 | 0.00 | 8338.04 | 0.00 | 0.00 | -8338.04 |
| 789+50 | 78950.00 | 50.00 | 0.00 | 0.00 | 2249.20 | 0.00 | 0.00 | 0.00 | 4003.21 | 0.00 | 0.00 | 12741.58 | 0.00 | 0.00 | -12741.58 |
| 789+95 BK | 78994.53 | 44.53 | 0.00 | 0.00 | 3514.63 | 0.00 | 0.00 | 0.00 | 4753.02 | 0.00 | 0.00 | 17969.90 | 0.00 | 0.00 | -17969.90 |
| | | | | | Column totals | | 0.00 | 0.00 | 16336.27 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4782
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:36 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew157 PLOT SCALE : 1:1

**Division 6 RAMP GH**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 561+12 AH | 56111.94 | 0.00 | 70.82 | 0.00 | 4.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 561+50 | 56150.00 | 38.06 | 56.50 | 0.00 | 1.37 | 0.00 | 89.74 | 0.00 | 3.80 | 0.00 | 89.74 | 4.18 | 0.00 | 0.00 | 85.56 |
| 561+58 | 56158.00 | 8.00 | 46.23 | 0.00 | 1.07 | 0.00 | 15.22 | 0.00 | 0.36 | 0.00 | 104.96 | 4.58 | 0.00 | 0.00 | 100.38 |
| 561+58 | 56158.00 | 0.00 | 61.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 104.96 | 4.58 | 0.00 | 0.00 | 100.38 |
| 562+00 | 56200.00 | 42.00 | 12.40 | 0.00 | 2.95 | 0.00 | 57.19 | 0.00 | 2.29 | 0.00 | 162.15 | 7.10 | 0.00 | 0.00 | 155.05 |
| 562+50 | 56250.00 | 50.00 | 0.60 | 0.00 | 31.83 | 0.00 | 12.04 | 0.00 | 32.20 | 0.00 | 174.18 | 42.52 | 0.00 | 0.00 | 131.66 |
| 563+00 | 56300.00 | 50.00 | 0.01 | 0.00 | 55.12 | 0.00 | 0.56 | 0.00 | 80.51 | 0.00 | 174.75 | 131.08 | 0.00 | 0.00 | 43.66 |
| 563+50 | 56350.00 | 50.00 | 1.18 | 0.00 | 64.78 | 0.00 | 1.10 | 0.00 | 111.02 | 0.00 | 175.85 | 253.20 | 0.00 | 0.00 | -77.36 |
| 563+79 | 56379.00 | 29.00 | 0.67 | 0.00 | 47.27 | 0.00 | 0.99 | 0.00 | 60.18 | 0.00 | 176.84 | 319.40 | 0.00 | 0.00 | -142.55 |
| 563+79 | 56379.00 | 0.00 | 0.64 | 0.00 | 74.31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 176.84 | 319.40 | 0.00 | 0.00 | -142.55 |
| 564+00 | 56400.00 | 21.00 | 0.08 | 0.00 | 57.46 | 0.00 | 0.28 | 0.00 | 51.24 | 0.00 | 177.12 | 375.77 | 0.00 | 0.00 | -198.64 |
| 564+28 BK | 56427.84 | 27.84 | 0.15 | 0.00 | 40.58 | 0.00 | 0.12 | 0.00 | 50.55 | 0.00 | 177.24 | 431.37 | 0.00 | 0.00 | -254.12 |
| | | Column totals | | | | | 177.24 | 0.00 | 392.15 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4783
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:36 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew158 PLOT SCALE : 1:1

**Division 6 RAMP BC**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 702+68 AH | 70267.61 | 0.00 | 78.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 703+00 | 70300.00 | 32.39 | 89.20 | 0.00 | 0.00 | 0.00 | 100.52 | 0.00 | 0.00 | 0.00 | 100.52 | 0.00 | 0.00 | 0.00 | 100.52 |
| 703+50 | 70350.00 | 50.00 | 101.06 | 0.00 | 0.00 | 0.00 | 176.17 | 0.00 | 0.00 | 0.00 | 276.69 | 0.00 | 0.00 | 0.00 | 276.69 |
| 704+00 | 70400.00 | 50.00 | 120.43 | 0.00 | 0.00 | 0.00 | 205.08 | 0.00 | 0.00 | 0.00 | 481.77 | 0.00 | 0.00 | 0.00 | 481.77 |
| 704+40 | 70440.00 | 40.00 | 143.78 | 0.00 | 0.00 | 0.00 | 195.71 | 0.00 | 0.00 | 0.00 | 677.48 | 0.00 | 0.00 | 0.00 | 677.48 |
| 704+40 | 70440.00 | 0.00 | 91.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 677.48 | 0.00 | 0.00 | 0.00 | 677.48 |
| 704+50 | 70450.00 | 10.00 | 91.62 | 0.00 | 0.00 | 0.00 | 33.93 | 0.00 | 0.00 | 0.00 | 711.42 | 0.00 | 0.00 | 0.00 | 33.93 |
| 705+00 | 70500.00 | 50.00 | 91.63 | 0.00 | 0.00 | 0.00 | 169.68 | 0.00 | 0.00 | 0.00 | 881.09 | 0.00 | 0.00 | 0.00 | 847.16 |
| 705+50 | 70550.00 | 50.00 | 91.62 | 0.00 | 0.00 | 0.00 | 169.68 | 0.00 | 0.00 | 0.00 | 1050.77 | 0.00 | 0.00 | 0.00 | 203.61 |
| 706+00 | 70600.00 | 50.00 | 91.62 | 0.00 | 0.00 | 0.00 | 169.67 | 0.00 | 0.00 | 0.00 | 1220.43 | 0.00 | 0.00 | 0.00 | 1016.83 |
| 706+50 | 70650.00 | 50.00 | 91.62 | 0.00 | 0.00 | 0.00 | 169.67 | 0.00 | 0.00 | 0.00 | 1390.10 | 0.00 | 0.00 | 0.00 | 373.27 |
| 707+00 | 70700.00 | 50.00 | 91.62 | 0.00 | 0.00 | 0.00 | 169.67 | 0.00 | 0.00 | 0.00 | 1559.77 | 0.00 | 0.00 | 0.00 | 1186.49 |
| 707+50 | 70750.00 | 50.00 | 91.62 | 0.00 | 0.00 | 0.00 | 169.67 | 0.00 | 0.00 | 0.00 | 1729.43 | 0.00 | 0.00 | 0.00 | 542.94 |
| 708+00 | 70800.00 | 50.00 | 91.62 | 0.00 | 0.00 | 0.00 | 169.67 | 0.00 | 0.00 | 0.00 | 1899.10 | 0.00 | 0.00 | 0.00 | 1356.16 |
| 708+50 | 70850.00 | 50.00 | 42.21 | 0.00 | 16.08 | 0.00 | 123.92 | 0.00 | 14.89 | 0.00 | 2023.02 | 16.38 | 0.00 | 0.00 | 650.48 |
| 709+00 | 70900.00 | 50.00 | 87.55 | 0.00 | 3.31 | 0.00 | 120.15 | 0.00 | 17.95 | 0.00 | 2143.17 | 36.13 | 0.00 | 0.00 | 1456.56 |
| 709+50 | 70950.00 | 50.00 | 145.29 | 0.00 | 0.88 | 0.00 | 215.59 | 0.00 | 3.88 | 0.00 | 2358.76 | 40.39 | 0.00 | 0.00 | 861.80 |
| 710+00 | 71000.00 | 50.00 | 205.61 | 0.00 | 0.00 | 0.00 | 324.91 | 0.00 | 0.81 | 0.00 | 2683.67 | 41.29 | 0.00 | 0.00 | 1780.57 |
| 710+50 | 71050.00 | 50.00 | 274.62 | 0.00 | 0.00 | 0.00 | 444.66 | 0.00 | 0.00 | 0.00 | 3128.32 | 41.29 | 0.00 | 0.00 | 1306.46 |
| 711+00 | 71100.00 | 50.00 | 338.91 | 0.00 | 0.00 | 0.00 | 568.08 | 0.00 | 0.00 | 0.00 | 3696.41 | 41.29 | 0.00 | 0.00 | 2348.65 |
| 711+50 | 71150.00 | 50.00 | 354.32 | 0.00 | 0.00 | 0.00 | 641.88 | 0.00 | 0.00 | 0.00 | 4338.29 | 41.29 | 0.00 | 0.00 | 1948.34 |
| 712+00 | 71200.00 | 50.00 | 349.00 | 0.00 | 0.00 | 0.00 | 651.22 | 0.00 | 0.00 | 0.00 | 4989.51 | 41.29 | 0.00 | 0.00 | 2999.88 |
| 712+50 | 71250.00 | 50.00 | 327.12 | 0.00 | 0.00 | 0.00 | 626.04 | 0.00 | 0.00 | 0.00 | 5615.55 | 41.29 | 0.00 | 0.00 | 2574.38 |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4784
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 6 RAMP BC**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 713+00 | 71300.00 | 50.00 | 309.28 | 0.00 | 0.00 | 0.00 | 589.26 | 0.00 | 0.00 | 0.00 | 6204.80 | 41.29 | 0.00 | 0.00 | 3589.14 |
| 713+50 | 71350.00 | 50.00 | 256.43 | 0.00 | 0.00 | 0.00 | 523.81 | 0.00 | 0.00 | 0.00 | 6728.61 | 41.29 | 0.00 | 0.00 | 3098.18 |
| 714+00 | 71400.00 | 50.00 | 191.01 | 0.00 | 0.00 | 0.00 | 414.30 | 0.00 | 0.00 | 0.00 | 7142.91 | 41.29 | 0.00 | 0.00 | 4003.43 |
| 714+50 | 71450.00 | 50.00 | 128.41 | 0.00 | 0.00 | 0.00 | 295.76 | 0.00 | 0.00 | 0.00 | 7438.67 | 41.29 | 0.00 | 0.00 | 3393.94 |
| 715+00 | 71500.00 | 50.00 | 85.94 | 0.00 | 1.11 | 0.00 | 198.47 | 0.00 | 1.03 | 0.00 | 7637.14 | 42.42 | 0.00 | 0.00 | 4200.77 |
| 715+50 | 71550.00 | 50.00 | 135.58 | 0.00 | 0.64 | 0.00 | 205.11 | 0.00 | 1.62 | 0.00 | 7842.25 | 44.20 | 0.00 | 0.00 | 3597.27 |
| 716+00 | 71600.00 | 50.00 | 331.25 | 0.00 | 1.01 | 0.00 | 432.25 | 0.00 | 1.53 | 0.00 | 8274.50 | 45.88 | 0.00 | 0.00 | 4631.34 |
| 716+50 | 71650.00 | 50.00 | 233.09 | 0.00 | 1.88 | 0.00 | 522.54 | 0.00 | 2.68 | 0.00 | 8797.04 | 48.83 | 0.00 | 0.00 | 4116.87 |
| 717+00 | 71700.00 | 50.00 | 172.98 | 0.00 | 3.49 | 0.00 | 375.99 | 0.00 | 4.97 | 0.00 | 9173.03 | 54.30 | 0.00 | 0.00 | 5001.86 |
| 717+50 | 71750.00 | 50.00 | 45.68 | 0.00 | 6.76 | 0.00 | 202.46 | 0.00 | 9.49 | 0.00 | 9375.49 | 64.74 | 0.00 | 0.00 | 4308.89 |
| 718+00 | 71800.00 | 50.00 | 37.55 | 0.00 | 7.85 | 0.00 | 77.06 | 0.00 | 13.53 | 0.00 | 9452.55 | 79.62 | 0.00 | 0.00 | 5064.05 |
| 718+50 | 71850.00 | 50.00 | 32.13 | 0.00 | 7.93 | 0.00 | 64.52 | 0.00 | 14.61 | 0.00 | 9517.07 | 95.69 | 0.00 | 0.00 | 4357.34 |
| 719+00 | 71900.00 | 50.00 | 30.58 | 0.00 | 8.30 | 0.00 | 58.06 | 0.00 | 15.03 | 0.00 | 9575.14 | 112.22 | 0.00 | 0.00 | 5105.58 |
| 719+50 | 71950.00 | 50.00 | 22.97 | 0.00 | 14.55 | 0.00 | 49.58 | 0.00 | 21.16 | 0.00 | 9624.72 | 135.49 | 0.00 | 0.00 | 4383.65 |
| 720+00 | 72000.00 | 50.00 | 24.81 | 0.00 | 13.22 | 0.00 | 44.24 | 0.00 | 25.71 | 0.00 | 9668.96 | 163.78 | 0.00 | 0.00 | 5121.54 |
| 720+50 | 72050.00 | 50.00 | 25.22 | 0.00 | 16.95 | 0.00 | 46.32 | 0.00 | 27.94 | 0.00 | 9715.29 | 194.51 | 0.00 | 0.00 | 4399.24 |
| 720+92 BK | 72092.45 | 42.45 | 93.62 | 0.00 | 12.86 | 0.00 | 93.42 | 0.00 | 23.43 | 0.00 | 9808.71 | 220.28 | 0.00 | 0.00 | 5189.18 |
| | | Column totals | | | | | 9808.71 | 0.00 | 200.26 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4785
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:36 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew160 PLOT SCALE : 1:1

**Division 6 RAMP SA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 559+81 AH | 55981.32 | 0.00 | 59.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 560+00 | 56000.00 | 18.68 | 43.25 | 0.00 | 0.82 | 0.00 | 35.51 | 0.00 | 0.28 | 0.00 | 35.51 | 0.31 | 0.00 | 0.00 | 35.20 |
| 560+50 | 56050.00 | 50.00 | 48.97 | 0.00 | 0.00 | 0.00 | 85.39 | 0.00 | 0.76 | 0.00 | 120.90 | 1.15 | 0.00 | 0.00 | 119.75 |
| 561+00 | 56100.00 | 50.00 | 65.01 | 0.00 | 0.00 | 0.00 | 105.54 | 0.00 | 0.00 | 0.00 | 226.44 | 1.15 | 0.00 | 0.00 | 225.29 |
| 561+17 BK | 56116.77 | 16.77 | 62.23 | 0.00 | 0.00 | 0.00 | 39.52 | 0.00 | 0.00 | 0.00 | 265.95 | 1.15 | 0.00 | 0.00 | 264.81 |
| 563+28 AH | 56327.74 | 0.00 | 89.98 | 0.00 | 1.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 563+50 | 56350.00 | 22.26 | 30.73 | 0.00 | 4.97 | 0.00 | 49.76 | 0.00 | 2.52 | 0.00 | 49.76 | 2.77 | 0.00 | 0.00 | 46.99 |
| 564+00 | 56400.00 | 50.00 | 26.73 | 0.00 | 4.23 | 0.00 | 53.20 | 0.00 | 8.52 | 0.00 | 102.96 | 12.14 | 0.00 | 0.00 | 90.82 |
| 564+50 | 56450.00 | 50.00 | 21.15 | 0.00 | 3.26 | 0.00 | 44.33 | 0.00 | 6.94 | 0.00 | 147.30 | 19.77 | 0.00 | 0.00 | 127.53 |
| 565+00 | 56500.00 | 50.00 | 15.77 | 0.00 | 1.32 | 0.00 | 34.19 | 0.00 | 4.24 | 0.00 | 181.48 | 24.43 | 0.00 | 0.00 | 157.05 |
| 565+50 | 56550.00 | 50.00 | 9.06 | 0.00 | 4.28 | 0.00 | 22.99 | 0.00 | 5.19 | 0.00 | 204.47 | 30.14 | 0.00 | 0.00 | 174.33 |
| 566+00 | 56600.00 | 50.00 | 7.52 | 0.00 | 8.85 | 0.00 | 15.35 | 0.00 | 12.16 | 0.00 | 219.82 | 43.51 | 0.00 | 0.00 | 176.31 |
| 566+50 | 56650.00 | 50.00 | 5.01 | 0.00 | 11.47 | 0.00 | 11.60 | 0.00 | 18.81 | 0.00 | 231.43 | 64.21 | 0.00 | 0.00 | 167.22 |
| 567+00 | 56700.00 | 50.00 | 2.30 | 0.00 | 10.81 | 0.00 | 6.77 | 0.00 | 20.63 | 0.00 | 238.19 | 86.90 | 0.00 | 0.00 | 151.29 |
| 567+50 | 56750.00 | 50.00 | 1.59 | 0.00 | 9.63 | 0.00 | 3.60 | 0.00 | 18.93 | 0.00 | 241.80 | 107.72 | 0.00 | 0.00 | 134.08 |
| 568+00 | 56800.00 | 50.00 | 0.03 | 0.00 | 10.70 | 0.00 | 1.50 | 0.00 | 18.82 | 0.00 | 243.30 | 128.43 | 0.00 | 0.00 | 114.87 |
| 568+50 | 56850.00 | 50.00 | 0.04 | 0.00 | 10.07 | 0.00 | 0.06 | 0.00 | 19.23 | 0.00 | 243.36 | 149.58 | 0.00 | 0.00 | 93.78 |
| 569+00 | 56900.00 | 50.00 | 0.03 | 0.00 | 9.88 | 0.00 | 0.06 | 0.00 | 18.47 | 0.00 | 243.43 | 169.90 | 0.00 | 0.00 | 73.53 |
| 569+50 | 56950.00 | 50.00 | 0.03 | 0.00 | 10.02 | 0.00 | 0.06 | 0.00 | 18.43 | 0.00 | 243.48 | 190.17 | 0.00 | 0.00 | 53.31 |
| 570+00 | 57000.00 | 50.00 | 0.03 | 0.00 | 9.92 | 0.00 | 0.06 | 0.00 | 18.46 | 0.00 | 243.54 | 210.48 | 0.00 | 0.00 | 33.06 |
| 570+50 | 57050.00 | 50.00 | 0.04 | 0.00 | 9.93 | 0.00 | 0.06 | 0.00 | 18.38 | 0.00 | 243.60 | 230.69 | 0.00 | 0.00 | 12.91 |
| 571+00 | 57100.00 | 50.00 | 0.03 | 0.00 | 12.94 | 0.00 | 0.06 | 0.00 | 21.18 | 0.00 | 243.67 | 253.99 | 0.00 | 0.00 | -10.32 |
| 571+28 BK | 57128.02 | 28.02 | 93.44 | 0.00 | 0.02 | 0.00 | 48.50 | 0.00 | 6.72 | 0.00 | 292.17 | 261.39 | 0.00 | 0.00 | 30.78 |

1

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4786
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 6 RAMP SA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 572+36 AH | 57235.53 | 0.00 | 1.33 | 0.00 | 0.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 572+50 | 57250.00 | 14.47 | 3.19 | 0.00 | 21.13 | 0.00 | 1.21 | 0.00 | 5.75 | 0.00 | 1.21 | 6.33 | 0.00 | 0.00 | -5.12 |
| 573+00 | 57300.00 | 50.00 | 0.89 | 0.00 | 11.77 | 0.00 | 3.78 | 0.00 | 30.46 | 0.00 | 4.99 | 39.84 | 0.00 | 0.00 | -34.85 |
| 573+03 | 57302.73 | 2.73 | 0.62 | 0.00 | 12.58 | 0.00 | 0.08 | 0.00 | 1.23 | 0.00 | 5.07 | 41.19 | 0.00 | 0.00 | -36.13 |
| 573+03 | 57302.73 | 0.00 | 0.64 | 0.00 | 20.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.07 | 41.19 | 0.00 | 0.00 | -36.13 |
| 573+50 | 57350.00 | 47.27 | 1.67 | 0.00 | 25.68 | 0.00 | 2.02 | 0.00 | 40.70 | 0.00 | 7.09 | 85.97 | 0.00 | 0.00 | -78.88 |
| 574+00 | 57400.00 | 50.00 | 2.64 | 0.00 | 103.80 | 0.00 | 3.99 | 0.00 | 119.89 | 0.00 | 11.08 | 217.84 | 0.00 | 0.00 | -206.77 |
| 574+50 | 57450.00 | 50.00 | 3.32 | 0.00 | 243.69 | 0.00 | 5.52 | 0.00 | 321.75 | 0.00 | 16.60 | 571.77 | 0.00 | 0.00 | -555.17 |
| 575+00 | 57500.00 | 50.00 | 22.96 | 0.00 | 308.09 | 0.00 | 24.33 | 0.00 | 510.91 | 0.00 | 40.93 | 1133.77 | 0.00 | 0.00 | -1092.84 |
| 575+23 | 57523.43 | 23.43 | 44.71 | 0.00 | 325.28 | 0.00 | 29.36 | 0.00 | 274.81 | 0.00 | 70.29 | 1436.06 | 0.00 | 0.00 | -1365.77 |
| 575+23 | 57523.43 | 0.00 | 140.19 | 0.00 | 327.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 70.29 | 1436.06 | 0.00 | 0.00 | -1365.77 |
| 575+50 | 57550.00 | 26.57 | 154.06 | 0.00 | 341.16 | 0.00 | 144.78 | 0.00 | 328.84 | 0.00 | 215.07 | 1797.78 | 0.00 | 0.00 | -1582.71 |
| 576+00 | 57600.00 | 50.00 | 179.58 | 0.00 | 318.56 | 0.00 | 308.93 | 0.00 | 610.85 | 0.00 | 524.00 | 2469.72 | 0.00 | 0.00 | -1945.72 |
| 576+50 | 57650.00 | 50.00 | 201.35 | 0.00 | 246.08 | 0.00 | 352.71 | 0.00 | 522.81 | 0.00 | 876.71 | 3044.82 | 0.00 | 0.00 | -2168.10 |
| 577+00 | 57700.00 | 50.00 | 196.36 | 0.00 | 23.05 | 0.00 | 368.25 | 0.00 | 249.19 | 0.00 | 1244.96 | 3318.93 | 0.00 | 0.00 | -2073.97 |
| 577+50 | 57750.00 | 50.00 | 208.86 | 0.00 | 18.96 | 0.00 | 375.20 | 0.00 | 38.90 | 0.00 | 1620.17 | 3361.72 | 0.00 | 0.00 | -1741.55 |
| 577+88 BK | 57788.29 | 38.29 | 211.26 | 0.00 | 19.88 | 0.00 | 297.90 | 0.00 | 27.54 | 0.00 | 1918.06 | 3392.01 | 0.00 | 0.00 | -1473.95 |
| | | | | | | Column totals | 2476.18 | 0.00 | 3322.31 | 0.00 | | | | | |

3

1

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4787
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:36 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew162 PLOT SCALE : 1:1

Addendum No. 03
ID 1060-33-81
Revised Sheet 4788
September 14, 2015

**Division 6 RAMP SD**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 531+74 AH | 53174.08 | 0.00 | 0.00 | 0.00 | 268.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 532+00 | 53200.00 | 25.92 | 0.00 | 0.00 | 299.89 | 0.00 | 0.00 | 0.00 | 272.82 | 0.00 | 0.00 | 300.10 | 0.00 | 0.00 | -300.10 |
| 532+50 | 53250.00 | 50.00 | 0.00 | 0.00 | 387.89 | 0.00 | 0.00 | 0.00 | 636.83 | 0.00 | 0.00 | 1000.62 | 0.00 | 0.00 | -1000.62 |
| 533+00 | 53300.00 | 50.00 | 0.00 | 0.00 | 370.87 | 0.00 | 0.00 | 0.00 | 702.56 | 0.00 | 0.00 | 1773.43 | 0.00 | 0.00 | -1773.43 |
| 533+50 | 53350.00 | 50.00 | 0.00 | 0.00 | 424.27 | 0.00 | 0.00 | 0.00 | 736.24 | 0.00 | 0.00 | 2583.30 | 0.00 | 0.00 | -2583.30 |
| 534+00 | 53400.00 | 50.00 | 0.00 | 0.00 | 474.69 | 0.00 | 0.00 | 0.00 | 832.37 | 0.00 | 0.00 | 3498.90 | 0.00 | 0.00 | -3498.90 |
| 534+50 | 53450.00 | 50.00 | 0.00 | 0.00 | 505.93 | 0.00 | 0.00 | 0.00 | 907.98 | 0.00 | 0.00 | 4497.68 | 0.00 | 0.00 | -4497.68 |
| 535+00 | 53500.00 | 50.00 | 0.00 | 0.00 | 502.07 | 0.00 | 0.00 | 0.00 | 933.33 | 0.00 | 0.00 | 5524.35 | 0.00 | 0.00 | -5524.35 |
| 535+50 | 53550.00 | 50.00 | 0.00 | 0.00 | 453.60 | 0.00 | 0.00 | 0.00 | 884.88 | 0.00 | 0.00 | 6497.72 | 0.00 | 0.00 | -6497.72 |
| 536+00 | 53600.00 | 50.00 | 0.00 | 0.00 | 377.19 | 0.00 | 0.00 | 0.00 | 769.25 | 0.00 | 0.00 | 7343.89 | 0.00 | 0.00 | -7343.89 |
| 536+03 | 53602.74 | 2.74 | 0.00 | 0.00 | 377.35 | 0.00 | 0.00 | 0.00 | 38.29 | 0.00 | 0.00 | 7386.01 | 0.00 | 0.00 | -7386.01 |
| 536+03 | 53602.74 | 0.00 | 0.00 | 0.00 | 297.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7386.01 | 0.00 | 0.00 | -7386.01 |
| 536+50 | 53650.00 | 47.26 | 0.00 | 0.00 | 305.46 | 0.00 | 0.00 | 0.00 | 527.55 | 0.00 | 0.00 | 7966.32 | 0.00 | 0.00 | -7966.32 |
| 537+00 | 53700.00 | 50.00 | 0.00 | 0.00 | 199.19 | 0.00 | 0.00 | 0.00 | 467.27 | 0.00 | 0.00 | 8480.31 | 0.00 | 0.00 | -8480.31 |
| 537+50 | 53750.00 | 50.00 | 0.00 | 0.00 | 135.19 | 0.00 | 0.00 | 0.00 | 309.61 | 0.00 | 0.00 | 8820.88 | 0.00 | 0.00 | -8820.88 |
| 538+00 | 53800.00 | 50.00 | 0.00 | 0.00 | 93.58 | 0.00 | 0.00 | 0.00 | 211.82 | 0.00 | 0.00 | 9053.89 | 0.00 | 0.00 | -9053.89 |
| 538+50 | 53850.00 | 50.00 | 0.00 | 0.00 | 63.00 | 0.00 | 0.00 | 0.00 | 144.98 | 0.00 | 0.00 | 9213.37 | 0.00 | 0.00 | -9213.37 |
| 539+00 | 53900.00 | 50.00 | 0.91 | 0.00 | 46.60 | 0.00 | 0.84 | 0.00 | 101.48 | 0.00 | 0.84 | 9325.00 | 0.00 | 0.00 | -9324.16 |
| 539+50 | 53950.00 | 50.00 | 2.50 | 0.00 | 52.56 | 0.00 | 3.16 | 0.00 | 91.81 | 0.00 | 4.00 | 9426.00 | 0.00 | 0.00 | -9422.00 |
| 540+00 | 54000.00 | 50.00 | 22.94 | 0.00 | 8.16 | 0.00 | 23.56 | 0.00 | 56.22 | 0.00 | 27.56 | 9487.84 | 0.00 | 0.00 | -9460.28 |
| 540+50 | 54050.00 | 50.00 | 37.27 | 0.00 | 24.90 | 0.00 | 55.75 | 0.00 | 30.61 | 0.00 | 83.31 | 9521.51 | 0.00 | 0.00 | -9438.21 |
| 541+00 | 54100.00 | 50.00 | 39.21 | 0.00 | 56.01 | 0.00 | 70.81 | 0.00 | 74.92 | 0.00 | 154.12 | 9603.92 | 0.00 | 0.00 | -9449.80 |
| 541+50 | 54150.00 | 50.00 | 77.43 | 0.00 | 98.18 | 0.00 | 108.00 | 0.00 | 142.77 | 0.00 | 262.12 | 9760.97 | 0.00 | 0.00 | -9498.85 |
| 542+00 | 54200.00 | 50.00 | 68.18 | 0.00 | 142.82 | 0.00 | 134.82 | 0.00 | 223.15 | 0.00 | 396.94 | 10006.43 | 0.00 | 0.00 | -9609.48 |
| 542+50 | 54250.00 | 50.00 | 61.09 | 0.00 | 185.65 | 0.00 | 119.69 | 0.00 | 304.14 | 0.00 | 516.64 | 10340.98 | 0.00 | 0.00 | -9824.34 |
| 543+00 | 54300.00 | 50.00 | 2.97 | 0.00 | 267.40 | 0.00 | 59.31 | 0.00 | 419.49 | 0.00 | 575.95 | 10802.42 | 0.00 | 0.00 | -10226.47 |
| 543+50 | 54350.00 | 50.00 | 0.00 | 0.00 | 325.77 | 0.00 | 2.75 | 0.00 | 549.23 | 0.00 | 578.70 | 11406.58 | 0.00 | 0.00 | -10827.87 |
| 544+00 | 54400.00 | 50.00 | 0.00 | 0.00 | 307.65 | 0.00 | 0.00 | 0.00 | 586.50 | 0.00 | 578.70 | 12051.73 | 0.00 | 0.00 | -11473.02 |
| 544+50 | 54450.00 | 50.00 | 0.00 | 0.00 | 273.63 | 0.00 | 0.00 | 0.00 | 538.22 | 0.00 | 578.70 | 12643.77 | 0.00 | 0.00 | -12065.07 |
| 545+00 | 54500.00 | 50.00 | 3.41 | 0.00 | 428.60 | 0.00 | 3.16 | 0.00 | 650.21 | 0.00 | 581.86 | 13359.01 | 0.00 | 0.00 | -12777.14 |
| 545+50 | 54550.00 | 50.00 | 72.17 | 0.00 | 125.44 | 0.00 | 69.98 | 0.00 | 513.00 | 0.00 | 651.84 | 13923.31 | 0.00 | 0.00 | -13271.46 |
| 546+00 | 54600.00 | 50.00 | 133.93 | 0.00 | 45.04 | 0.00 | 190.83 | 0.00 | 157.85 | 0.00 | 842.68 | 14096.94 | 0.00 | 0.00 | -13254.27 |
| 546+15 BK | 54614.72 | 14.72 | 144.26 | 0.00 | 2.97 | 0.00 | 75.83 | 0.00 | 13.09 | 0.00 | 918.51 | 14111.34 | 0.00 | 0.00 | -13192.83 |
| | | | | | | Column totals | 918.51 | 0.00 | 12828.49 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

9

9

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4788 | E |
|---|---|---|---|---|---|

**Division 6 RAMP SM**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 160+64 AH | 16064.35 | 0.00 | 56.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 161+00 | 16100.00 | 35.65 | 57.45 | 0.00 | 0.00 | 0.00 | 75.39 | 0.00 | 0.00 | 0.00 | 75.39 | 0.00 | 0.00 | 0.00 | 75.39 |
| 161+50 | 16150.00 | 50.00 | 61.93 | 0.00 | 0.00 | 0.00 | 110.54 | 0.00 | 0.00 | 0.00 | 185.93 | 0.00 | 0.00 | 0.00 | 185.93 |
| 161+62 | 16162.20 | 12.20 | 62.00 | 0.00 | 0.00 | 0.00 | 28.00 | 0.00 | 0.00 | 0.00 | 213.93 | 0.00 | 0.00 | 0.00 | 213.93 |
| 161+62 | 16162.20 | 0.00 | 157.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 213.93 | 0.00 | 0.00 | 0.00 | 213.93 |
| 162+00 | 16200.00 | 37.80 | 144.10 | 0.00 | 0.00 | 0.00 | 210.94 | 0.00 | 0.00 | 0.00 | 424.87 | 0.00 | 0.00 | 0.00 | 424.87 |
| 162+50 | 16250.00 | 50.00 | 125.16 | 0.00 | 0.00 | 0.00 | 249.31 | 0.00 | 0.00 | 0.00 | 674.19 | 0.00 | 0.00 | 0.00 | 674.19 |
| 162+75 | 16275.02 | 25.02 | 113.74 | 0.00 | 0.00 | 0.00 | 110.69 | 0.00 | 0.00 | 0.00 | 784.88 | 0.00 | 0.00 | 0.00 | 784.88 |
| 162+75 | 16275.02 | 0.00 | 142.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 784.88 | 0.00 | 0.00 | 0.00 | 784.88 |
| 163+00 | 16300.00 | 24.98 | 131.40 | 0.00 | 0.00 | 0.00 | 126.82 | 0.00 | 0.00 | 0.00 | 911.70 | 0.00 | 0.00 | 0.00 | 911.70 |
| 163+50 | 16350.00 | 50.00 | 113.91 | 0.00 | 0.00 | 0.00 | 227.14 | 0.00 | 0.00 | 0.00 | 1138.84 | 0.00 | 0.00 | 0.00 | 1138.84 |
| 163+93 BK | 16392.66 | 42.66 | 101.10 | 0.00 | 0.00 | 0.00 | 169.86 | 0.00 | 0.00 | 0.00 | 1308.70 | 0.00 | 0.00 | 0.00 | 1308.70 |
| | | | | | Column totals | | 1308.70 | 0.00 | 0.00 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4789
September 14, 2015

**Division 6 RAMP FC**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 792+86 AH | 79286.00 | 0.00 | 2999.84 | 0.00 | 690.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 793+00 | 79300.00 | 14.00 | 3278.54 | 0.00 | 435.44 | 0.00 | 1627.73 | 0.00 | 291.83 | 0.00 | 1627.73 | 321.01 | 0.00 | 0.00 | 1306.72 |
| 793+50 | 79350.00 | 50.00 | 3746.85 | 0.00 | 3.46 | 0.00 | 6504.99 | 0.00 | 406.39 | 0.00 | 8132.72 | 768.04 | 0.00 | 0.00 | 7364.68 |
| 794+00 | 79400.00 | 50.00 | 2950.33 | 0.00 | 0.00 | 0.00 | 6201.09 | 0.00 | 3.20 | 0.00 | 14333.81 | 771.56 | 0.00 | 0.00 | 13562.25 |
| 794+50 | 79450.00 | 50.00 | 2520.11 | 0.00 | 71.24 | 0.00 | 5065.22 | 0.00 | 65.96 | 0.00 | 19399.03 | 844.12 | 0.00 | 0.00 | 18554.91 |
| 795+00 | 79500.00 | 50.00 | 2187.95 | 0.00 | 41.07 | 0.00 | 4359.31 | 0.00 | 103.99 | 0.00 | 23758.35 | 958.51 | 0.00 | 0.00 | 22799.84 |
| 795+50 | 79550.00 | 50.00 | 1919.98 | 0.00 | 94.57 | 0.00 | 3803.64 | 0.00 | 125.59 | 0.00 | 27561.99 | 1096.66 | 0.00 | 0.00 | 26465.32 |
| 796+00 BK | 79600.00 | 50.00 | 1603.51 | 0.00 | 55.78 | 0.00 | 3262.49 | 0.00 | 139.21 | 0.00 | 30824.48 | 1249.80 | 0.00 | 0.00 | 29574.68 |
| | | | | | | Column totals | 30824.48 | 0.00 | 1136.18 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4790
September 14, 2015

**Division** 6 RAMP FH

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Salvaged/ Unusable Pavement Material Note 2 | Fill Note 3 | EBS | Cumulative Vol (CY) Cut Note 1 | Expanded Fill 1.1 | Expanded EBS Backfill 1.30 Note 4 | Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 791+45 AH | 79144.88 | 0.00 | 958.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 791+50 | 79150.00 | 5.12 | 783.58 | 0.00 | 0.00 | 0.00 | 165.16 | 0.00 | 0.00 | 0.00 | 165.16 | 0.00 | 0.00 | 0.00 | 165.16 |
| 792+00 | 79200.00 | 50.00 | 1043.84 | 0.00 | 8.45 | 0.00 | 1692.06 | 0.00 | 7.82 | 0.00 | 1857.21 | 8.61 | 0.00 | 0.00 | 1848.61 |
| 792+50 | 79250.00 | 50.00 | 1052.90 | 0.00 | 27.61 | 0.00 | 1941.43 | 0.00 | 33.39 | 0.00 | 3798.64 | 45.33 | 0.00 | 0.00 | 3753.30 |
| 793+00 | 79300.00 | 50.00 | 1168.16 | 0.00 | 28.18 | 0.00 | 2056.54 | 0.00 | 51.66 | 0.00 | 5855.17 | 102.16 | 0.00 | 0.00 | 5753.02 |
| 793+50 | 79350.00 | 50.00 | 1147.20 | 0.00 | 143.96 | 0.00 | 2143.85 | 0.00 | 159.39 | 0.00 | 7999.03 | 277.49 | 0.00 | 0.00 | 7721.54 |
| 793+90 | 79390.00 | 40.00 | 922.41 | 0.00 | 282.79 | 0.00 | 1533.04 | 0.00 | 316.11 | 0.00 | 9532.07 | 625.21 | 0.00 | 0.00 | 8906.86 |
| 793+90 | 79390.00 | 0.00 | 779.47 | 0.00 | 302.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9532.07 | 625.21 | 0.00 | 0.00 | 8906.86 |
| 794+00 | 79400.00 | 10.00 | 668.03 | 0.00 | 342.47 | 1.00 | 268.06 | 0.00 | 119.35 | 0.00 | 9800.13 | 756.49 | 0.00 | 0.00 | 9043.63 |
| 794+50 | 79450.00 | 50.00 | 832.46 | 0.00 | 20.26 | 2.00 | 1389.34 | 0.00 | 335.86 | 0.00 | 11189.47 | 1125.94 | 0.00 | 0.00 | 10063.53 |
| 795+00 | 79500.00 | 50.00 | 894.10 | 0.00 | 0.00 | 3.00 | 1598.67 | 0.00 | 18.76 | 0.00 | 12788.14 | 1146.57 | 0.00 | 0.00 | 11641.56 |
| 795+50 | 79550.00 | 50.00 | 737.09 | 0.00 | 0.00 | 4.00 | 1510.36 | 0.00 | 0.00 | 0.00 | 14298.50 | 1146.57 | 0.00 | 0.00 | 13151.92 |
| 796+00 | 79600.00 | 50.00 | 412.63 | 0.00 | 9.56 | 5.00 | 1064.56 | 0.00 | 8.85 | 0.00 | 15363.05 | 1156.31 | 0.00 | 0.00 | 14206.74 |
| 796+50 | 79650.00 | 50.00 | 282.11 | 0.00 | 8.51 | 6.00 | 643.28 | 0.00 | 16.73 | 0.00 | 16006.33 | 1174.72 | 0.00 | 0.00 | 14831.61 |
| 797+00 | 79700.00 | 50.00 | 153.66 | 0.00 | 5.04 | 7.00 | 403.49 | 0.00 | 12.55 | 0.00 | 16409.82 | 1188.52 | 0.00 | 0.00 | 15221.30 |
| 797+50 | 79750.00 | 50.00 | 107.17 | 0.00 | 2.91 | 8.00 | 241.51 | 0.00 | 7.36 | 0.00 | 16651.33 | 1196.61 | 0.00 | 0.00 | 15454.72 |
| 798+00 | 79800.00 | 50.00 | 94.66 | 0.00 | 58.19 | 9.00 | 186.88 | 0.00 | 56.57 | 0.00 | 16838.21 | 1258.85 | 0.00 | 0.00 | 15579.36 |
| 798+50 | 79850.00 | 50.00 | 107.39 | 0.00 | 230.11 | 10.00 | 187.08 | 0.00 | 266.94 | 0.00 | 17025.29 | 1552.49 | 0.00 | 0.00 | 15472.81 |
| 799+00 | 79900.00 | 50.00 | 120.93 | 0.00 | 385.42 | 11.00 | 211.41 | 0.00 | 569.94 | 0.00 | 17236.70 | 2179.41 | 0.00 | 0.00 | 15057.29 |
| 799+50 | 79950.00 | 50.00 | 122.28 | 0.00 | 284.83 | 0.00 | 225.19 | 0.00 | 620.60 | 0.00 | 17461.89 | 2862.08 | 0.00 | 0.00 | 14599.82 |
| 800+00 | 80000.00 | 50.00 | 107.99 | 0.00 | 209.79 | 0.00 | 213.21 | 0.00 | 457.98 | 0.00 | 17675.11 | 3365.86 | 0.00 | 0.00 | 14309.25 |
| 800+50 | 80050.00 | 50.00 | 127.62 | 0.00 | 175.08 | 0.00 | 218.16 | 0.00 | 356.36 | 0.00 | 17893.27 | 3757.85 | 0.00 | 0.00 | 14135.41 |
| 800+73 | 80072.72 | 22.72 | 18.46 | 0.00 | 62.00 | 0.00 | 61.46 | 0.00 | 99.75 | 0.00 | 17954.73 | 3867.58 | 0.00 | 0.00 | 14087.15 |
| 801+00 | 80100.00 | 27.28 | 18.39 | 0.00 | 111.08 | 0.00 | 18.62 | 0.00 | 87.44 | 0.00 | 17973.34 | 3963.76 | 0.00 | 0.00 | 14009.59 |
| 801+14 BK | 80114.00 | 14.00 | 24.19 | 0.00 | 121.22 | 0.00 | 11.04 | 0.00 | 60.23 | 0.00 | 17984.38 | 4030.01 | 0.00 | 0.00 | 13954.38 |
| | | | | | | Column totals | 17984.38 | 0.00 | 3663.64 | 0.00 | | | | | |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4791
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:37 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew166 PLOT SCALE : 1:1

**Division 6 S. 100TH STREET (TD)**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12+42 AH | 1242.26 | 0.00 | 19.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12+50 | 1250.00 | 7.74 | 18.48 | 0.00 | 0.00 | 0.00 | 5.50 | 0.00 | 0.00 | 0.00 | 5.50 | 0.00 | 0.00 | 0.00 | 5.50 |
| 13+00 | 1300.00 | 50.00 | 22.28 | 0.00 | 0.00 | 0.00 | 37.74 | 0.00 | 0.00 | 0.00 | 43.24 | 0.00 | 0.00 | 0.00 | 43.24 |
| 13+50 | 1350.00 | 50.00 | 23.01 | 0.00 | 9.11 | 0.00 | 41.94 | 0.00 | 8.44 | 0.00 | 85.17 | 9.28 | 0.00 | 0.00 | 75.89 |
| 14+00 | 1400.00 | 50.00 | 22.03 | 0.00 | 15.63 | 0.00 | 41.70 | 0.00 | 22.91 | 0.00 | 126.88 | 34.48 | 0.00 | 0.00 | 92.40 |
| 14+50 | 1450.00 | 50.00 | 23.00 | 0.00 | 18.68 | 0.00 | 41.69 | 0.00 | 31.77 | 0.00 | 168.57 | 69.42 | 0.00 | 0.00 | 99.15 |
| 15+00 | 1500.00 | 50.00 | 24.04 | 0.00 | 19.77 | 0.00 | 43.56 | 0.00 | 35.60 | 0.00 | 212.13 | 108.58 | 0.00 | 0.00 | 103.54 |
| 15+50 | 1550.00 | 50.00 | 25.62 | 0.00 | 19.25 | 0.00 | 45.98 | 0.00 | 36.13 | 0.00 | 258.11 | 148.33 | 0.00 | 0.00 | 109.78 |
| 16+00 | 1600.00 | 50.00 | 27.03 | 0.00 | 19.71 | 0.00 | 48.75 | 0.00 | 36.07 | 0.00 | 306.86 | 188.01 | 0.00 | 0.00 | 118.85 |
| 16+50 | 1650.00 | 50.00 | 26.80 | 0.00 | 19.59 | 0.00 | 49.84 | 0.00 | 36.39 | 0.00 | 356.70 | 228.04 | 0.00 | 0.00 | 128.66 |
| 17+00 | 1700.00 | 50.00 | 24.70 | 0.00 | 19.43 | 0.00 | 47.69 | 0.00 | 36.13 | 0.00 | 404.38 | 267.78 | 0.00 | 0.00 | 136.61 |
| 17+50 | 1750.00 | 50.00 | 25.95 | 0.00 | 17.54 | 0.00 | 46.90 | 0.00 | 34.23 | 0.00 | 451.28 | 305.43 | 0.00 | 0.00 | 145.85 |
| 18+00 | 1800.00 | 50.00 | 23.86 | 0.00 | 9.78 | 0.00 | 46.12 | 0.00 | 25.30 | 0.00 | 497.40 | 333.26 | 0.00 | 0.00 | 164.14 |
| 18+50 | 1850.00 | 50.00 | 21.98 | 0.00 | 5.24 | 0.00 | 42.44 | 0.00 | 13.91 | 0.00 | 539.85 | 348.56 | 0.00 | 0.00 | 191.29 |
| 18+66 BK | 1866.02 | 16.02 | 18.32 | 0.00 | 2.65 | 0.00 | 11.96 | 0.00 | 2.34 | 0.00 | 551.80 | 351.13 | 0.00 | 0.00 | 200.67 |
| | | | | | | Column totals | 551.80 | 0.00 | 319.21 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4792
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:37 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew167 PLOT SCALE : 1:1

**Division 6 S. 100TH STREET (TE)**

| STATION | | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut Note 1 | Expanded Fill 1.1 | Expanded EBS Backfill 1.30 Note 4 | Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17+00 | AH | 1700.00 | 0.00 | 27.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 |
| 17+50 | | 1750.00 | 50.00 | 22.20 | 0.00 | 0.32 | 0.00 | 45.77 | 0.00 | 0.30 | 0.00 | 46.77 | 1.33 | 0.00 | 0.00 | 46.44 |
| 18+00 | | 1800.00 | 50.00 | 23.28 | 0.00 | 0.39 | 0.00 | 42.11 | 0.00 | 0.66 | 0.00 | 88.88 | 2.05 | 0.00 | 0.00 | 87.83 |
| 18+50 | | 1850.00 | 50.00 | 28.20 | 0.00 | 0.05 | 0.00 | 47.67 | 0.00 | 0.41 | 0.00 | 136.55 | 2.50 | 0.00 | 0.00 | 135.05 |
| 19+00 | | 1900.00 | 50.00 | 20.97 | 0.00 | 2.18 | 0.00 | 45.53 | 0.00 | 2.06 | 0.00 | 182.07 | 4.77 | 0.00 | 0.00 | 178.31 |
| 19+50 | | 1950.00 | 50.00 | 23.41 | 0.00 | 0.05 | 0.00 | 41.09 | 0.00 | 2.06 | 0.00 | 223.17 | 7.04 | 0.00 | 0.00 | 217.13 |
| 20+00 | | 2000.00 | 50.00 | 24.92 | 0.00 | 0.00 | 0.00 | 44.75 | 0.00 | 0.05 | 0.00 | 267.92 | 7.09 | 0.00 | 0.00 | 261.83 |
| 20+50 | | 2050.00 | 50.00 | 40.54 | 0.00 | 0.00 | 0.00 | 60.61 | 0.00 | 0.00 | 0.00 | 328.53 | 7.09 | 0.00 | 0.00 | 322.44 |
| 21+00 | | 2100.00 | 50.00 | 50.76 | 0.00 | 0.00 | 0.00 | 84.54 | 0.00 | 0.00 | 0.00 | 413.06 | 7.09 | 0.00 | 0.00 | 406.97 |
| 21+10 | BK | 2110.22 | 10.22 | 39.97 | 0.00 | 0.22 | 0.00 | 17.17 | 0.00 | 0.04 | 0.00 | 430.24 | 7.14 | 0.00 | 0.00 | 424.10 |
| | | | | | | | Column totals | 429.24 | 0.00 | 5.58 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4793
September 14, 2015

**Division 6 NSQ**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11+44 AH | 1144.45 | 0.00 | 3.08 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11+50 | 1150.00 | 5.55 | 3.45 | 0.00 | 0.16 | 0.00 | 0.67 | 0.00 | 0.03 | 0.00 | 0.67 | 0.03 | 0.00 | 0.00 | 0.64 |
| 12+00 | 1200.00 | 50.00 | 10.65 | 0.00 | 0.08 | 0.00 | 13.06 | 0.00 | 0.22 | 0.00 | 13.73 | 0.28 | 0.00 | 0.00 | 13.45 |
| 12+50 | 1250.00 | 50.00 | 23.12 | 0.00 | 0.00 | 0.00 | 31.27 | 0.00 | 0.07 | 0.00 | 45.00 | 0.36 | 0.00 | 0.00 | 44.64 |
| 13+00 | 1300.00 | 50.00 | 28.24 | 0.00 | 0.00 | 0.00 | 47.56 | 0.00 | 0.00 | 0.00 | 92.55 | 0.36 | 0.00 | 0.00 | 92.19 |
| 13+50 | 1350.00 | 50.00 | 38.51 | 0.00 | 0.00 | 0.00 | 61.81 | 0.00 | 0.00 | 0.00 | 154.36 | 0.36 | 0.00 | 0.00 | 154.00 |
| 14+00 | 1400.00 | 50.00 | 118.96 | 0.00 | 0.00 | 0.00 | 145.81 | 0.00 | 0.00 | 0.00 | 300.16 | 0.36 | 0.00 | 0.00 | 299.80 |
| 14+50 | 1450.00 | 50.00 | 128.41 | 0.00 | 0.00 | 0.00 | 229.05 | 0.00 | 0.00 | 0.00 | 529.21 | 0.36 | 0.00 | 0.00 | 528.85 |
| 15+00 | 1500.00 | 50.00 | 67.41 | 0.00 | 0.00 | 0.00 | 181.31 | 0.00 | 0.00 | 0.00 | 710.52 | 0.36 | 0.00 | 0.00 | 710.16 |
| 15+50 | 1550.00 | 50.00 | 82.59 | 0.00 | 0.00 | 0.00 | 138.89 | 0.00 | 0.00 | 0.00 | 849.41 | 0.36 | 0.00 | 0.00 | 849.05 |
| 16+00 | 1600.00 | 50.00 | 87.41 | 0.00 | 0.00 | 0.00 | 157.41 | 0.00 | 0.00 | 0.00 | 1006.82 | 0.36 | 0.00 | 0.00 | 1006.46 |
| 16+50 | 1650.00 | 50.00 | 75.51 | 0.00 | 0.00 | 0.00 | 150.85 | 0.00 | 0.00 | 0.00 | 1157.67 | 0.36 | 0.00 | 0.00 | 1157.31 |
| 17+00 | 1700.00 | 50.00 | 53.41 | 0.00 | 0.00 | 0.00 | 119.37 | 0.00 | 0.00 | 0.00 | 1277.04 | 0.36 | 0.00 | 0.00 | 1276.68 |
| 17+50 | 1750.00 | 50.00 | 46.59 | 0.00 | 5.40 | 0.00 | 92.59 | 0.00 | 5.00 | 0.00 | 1369.63 | 5.86 | 0.00 | 0.00 | 1363.77 |
| 18+00 | 1800.00 | 50.00 | 47.55 | 0.00 | 0.00 | 0.00 | 87.17 | 0.00 | 5.00 | 0.00 | 1456.80 | 11.36 | 0.00 | 0.00 | 1445.44 |
| 18+50 | 1850.00 | 50.00 | 64.30 | 0.00 | 0.00 | 0.00 | 103.56 | 0.00 | 0.00 | 0.00 | 1560.37 | 11.36 | 0.00 | 0.00 | 1549.01 |
| 19+00 | 1900.00 | 50.00 | 81.75 | 0.00 | 0.00 | 0.00 | 135.23 | 0.00 | 0.00 | 0.00 | 1695.60 | 11.36 | 0.00 | 0.00 | 1684.24 |
| 19+24 BK | 1923.78 | 23.78 | 88.88 | 0.00 | 0.00 | 0.00 | 75.14 | 0.00 | 0.00 | 0.00 | 1770.74 | 11.36 | 0.00 | 0.00 | 1759.38 |
| | | | | | | Column totals | 1770.74 | 0.00 | 10.33 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4794
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:37 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew169 PLOT SCALE : 1:1

**Division 6 EWW**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10+24 AH | 1023.52 | 0.00 | 4.32 | 0.00 | 3.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10+50 | 1050.00 | 26.48 | 4.31 | 0.00 | 3.79 | 0.00 | 4.23 | 0.00 | 3.76 | 0.00 | 4.23 | 4.14 | 0.00 | 0.00 | 0.09 |
| 11+00 | 1100.00 | 50.00 | 4.31 | 0.00 | 3.74 | 0.00 | 7.98 | 0.00 | 6.97 | 0.00 | 12.21 | 11.81 | 0.00 | 0.00 | 0.41 |
| 11+50 | 1150.00 | 50.00 | 4.65 | 0.00 | 3.70 | 0.00 | 8.30 | 0.00 | 6.89 | 0.00 | 20.51 | 19.38 | 0.00 | 0.00 | 1.13 |
| 12+00 | 1200.00 | 50.00 | 6.57 | 0.00 | 3.78 | 0.00 | 10.39 | 0.00 | 6.93 | 0.00 | 30.90 | 27.00 | 0.00 | 0.00 | 3.90 |
| 12+50 | 1250.00 | 50.00 | 10.86 | 0.00 | 4.15 | 0.00 | 16.14 | 0.00 | 7.34 | 0.00 | 47.04 | 35.08 | 0.00 | 0.00 | 11.96 |
| 13+00 | 1300.00 | 50.00 | 15.54 | 0.00 | 1.55 | 0.00 | 24.44 | 0.00 | 5.28 | 0.00 | 71.48 | 40.89 | 0.00 | 0.00 | 30.60 |
| 13+50 | 1350.00 | 50.00 | 6.27 | 0.00 | 0.16 | 0.00 | 20.19 | 0.00 | 1.58 | 0.00 | 91.68 | 42.63 | 0.00 | 0.00 | 49.05 |
| 14+00 | 1400.00 | 50.00 | 4.49 | 0.00 | 2.07 | 0.00 | 9.96 | 0.00 | 2.06 | 0.00 | 101.64 | 44.90 | 0.00 | 0.00 | 56.74 |
| 14+50 | 1450.00 | 50.00 | 3.34 | 0.00 | 1.16 | 0.00 | 7.25 | 0.00 | 2.99 | 0.00 | 108.89 | 48.19 | 0.00 | 0.00 | 60.70 |
| 14+90 BK | 1490.31 | 40.31 | 1.91 | 0.00 | 0.57 | 0.00 | 3.92 | 0.00 | 1.29 | 0.00 | 112.81 | 49.61 | 0.00 | 0.00 | 63.20 |
| | | Column totals | | | | | 112.81 | 0.00 | 45.10 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4795
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:37 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew170 PLOT SCALE : 1:1

**Division 6 ENB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12+28 AH | 1228.41 | 0.00 | 1.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12+50 | 1250.00 | 21.59 | 13.78 | 0.00 | 0.00 | 0.00 | 6.17 | 0.00 | 0.00 | 0.00 | 6.17 | 0.00 | 0.00 | 0.00 | 6.17 |
| 13+00 | 1300.00 | 50.00 | 5.85 | 0.00 | 22.47 | 0.00 | 18.18 | 0.00 | 20.81 | 0.00 | 24.35 | 22.89 | 0.00 | 0.00 | 1.46 |
| 13+50 | 1350.00 | 50.00 | 5.55 | 0.00 | 18.18 | 0.00 | 10.56 | 0.00 | 37.64 | 0.00 | 34.90 | 64.29 | 0.00 | 0.00 | -29.38 |
| 14+00 | 1400.00 | 50.00 | 4.22 | 0.00 | 6.16 | 0.00 | 9.05 | 0.00 | 22.54 | 0.00 | 43.95 | 89.08 | 0.00 | 0.00 | -45.13 |
| 14+47 BK | 1446.96 | 46.96 | 2.81 | 0.00 | 0.10 | 0.00 | 6.11 | 0.00 | 5.44 | 0.00 | 50.06 | 95.07 | 0.00 | 0.00 | -45.00 |
| | | Column totals | | | | | 50.06 | 0.00 | 86.43 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4796
September 14, 2015


9

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4796 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:37 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew171 PLOT SCALE : 1:1

**Division 6 WSD**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10+52 AH | 1051.73 | 0.00 | 0.00 | 0.00 | 24.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11+00 | 1100.00 | 48.27 | 0.00 | 0.00 | 31.28 | 0.00 | 0.00 | 0.00 | 49.78 | 0.00 | 0.00 | 54.76 | 0.00 | 0.00 | -54.76 |
| 11+50 | 1150.00 | 50.00 | 0.00 | 0.00 | 39.98 | 0.00 | 0.00 | 0.00 | 65.98 | 0.00 | 0.00 | 127.34 | 0.00 | 0.00 | -127.34 |
| 12+00 | 1200.00 | 50.00 | 0.00 | 0.00 | 42.73 | 0.00 | 0.00 | 0.00 | 76.58 | 0.00 | 0.00 | 211.58 | 0.00 | 0.00 | -211.58 |
| 12+50 | 1250.00 | 50.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 39.56 | 0.00 | 0.00 | 255.10 | 0.00 | 0.00 | -255.10 |
| 13+00 | 1300.00 | 50.00 | 0.00 | 0.00 | 63.71 | 0.00 | 0.00 | 0.00 | 58.99 | 0.00 | 0.00 | 319.99 | 0.00 | 0.00 | -319.99 |
| 13+50 | 1350.00 | 50.00 | 0.00 | 0.00 | 76.36 | 0.00 | 0.00 | 0.00 | 129.69 | 0.00 | 0.00 | 462.66 | 0.00 | 0.00 | -462.66 |
| 14+00 | 1400.00 | 50.00 | 0.00 | 0.00 | 88.30 | 0.00 | 0.00 | 0.00 | 152.46 | 0.00 | 0.00 | 630.36 | 0.00 | 0.00 | -630.36 |
| 14+40 BK | 1439.58 | 39.58 | 0.00 | 0.00 | 98.97 | 0.00 | 0.00 | 0.00 | 137.26 | 0.00 | 0.00 | 781.35 | 0.00 | 0.00 | -781.35 |
| | | Column totals | | | | | 0.00 | 0.00 | 710.32 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4797
September 14, 2015

9

9

PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4797 | E

**Division 6 NW INFIELD (NW)**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 487+00 AH | 48700.00 | 0.00 | 93.16 | 0.00 | 2482.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 487+50 | 48750.00 | 50.00 | 142.20 | 0.00 | 1282.37 | 0.00 | 217.93 | 0.00 | 3486.06 | 0.00 | 217.93 | 3834.66 | 0.00 | 0.00 | -3616.74 |
| 488+00 | 48800.00 | 50.00 | 230.78 | 0.00 | 145.97 | 0.00 | 345.35 | 0.00 | 1322.54 | 0.00 | 563.28 | 5289.45 | 0.00 | 0.00 | -4726.17 |
| 488+50 | 48850.00 | 50.00 | 166.98 | 0.00 | 18.84 | 0.00 | 368.30 | 0.00 | 152.60 | 0.00 | 931.57 | 5457.31 | 0.00 | 0.00 | -4525.74 |
| 489+00 | 48900.00 | 50.00 | 14.96 | 0.00 | 0.00 | 0.00 | 168.46 | 0.00 | 17.44 | 0.00 | 1100.04 | 5476.50 | 0.00 | 0.00 | -4376.47 |
| 489+50 | 48950.00 | 50.00 | 118.43 | 0.00 | 0.00 | 0.00 | 123.51 | 0.00 | 0.00 | 0.00 | 1223.55 | 5476.50 | 0.00 | 0.00 | -4252.96 |
| 490+00 | 49000.00 | 50.00 | 227.60 | 0.00 | 0.00 | 0.00 | 320.40 | 0.00 | 0.00 | 0.00 | 1543.94 | 5476.50 | 0.00 | 0.00 | -3932.56 |
| 490+50 | 49050.00 | 50.00 | 210.87 | 0.00 | 0.00 | 0.00 | 405.99 | 0.00 | 0.00 | 0.00 | 1949.94 | 5476.50 | 0.00 | 0.00 | -3526.57 |
| 491+00 | 49100.00 | 50.00 | 15.44 | 0.00 | 0.00 | 0.00 | 209.55 | 0.00 | 0.00 | 0.00 | 2159.48 | 5476.50 | 0.00 | 0.00 | -3317.02 |
| 491+50 | 49150.00 | 50.00 | 0.00 | 0.00 | 6.10 | 0.00 | 14.30 | 0.00 | 5.65 | 0.00 | 2173.78 | 5482.72 | 0.00 | 0.00 | -3308.94 |
| 491+60 BK | 49160.45 | 10.45 | 0.01 | 0.00 | 3.10 | 0.00 | 0.00 | 0.00 | 1.78 | 0.00 | 2173.78 | 5484.67 | 0.00 | 0.00 | -3310.89 |
| | | | | | | Column totals | 2173.78 | 0.00 | 4986.07 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4798
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:37 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew173 PLOT SCALE : 1:1

**Division** 6 NE INFIELD

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Salvaged/ Unusable Pavement Material Note 2 | Fill Note 3 | EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Expanded Fill 1.1 | Expanded EBS Backfill 1.30 Note 4 | Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 793+90 AH | 79390.00 | 0.00 | 44.65 | 0.00 | 6.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 794+00 | 79400.00 | 10.00 | 576.24 | 0.00 | 1104.48 | 1.00 | 114.98 | 0.00 | 205.74 | 0.00 | 114.98 | 226.32 | 0.00 | 0.00 | -111.34 |
| 794+50 | 79450.00 | 50.00 | 665.51 | 0.00 | 1003.68 | 2.00 | 1149.77 | 0.00 | 1952.00 | 0.00 | 1264.75 | 2373.52 | 0.00 | 0.00 | -1108.77 |
| 795+00 | 79500.00 | 50.00 | 945.75 | 0.00 | 1092.11 | 3.00 | 1491.91 | 0.00 | 1940.55 | 0.00 | 2756.66 | 4508.12 | 0.00 | 0.00 | -1751.46 |
| 795+50 | 79550.00 | 50.00 | 982.86 | 0.00 | 1127.83 | 4.00 | 1785.75 | 0.00 | 2055.50 | 0.00 | 4542.41 | 6769.17 | 0.00 | 0.00 | -2226.76 |
| 796+00 | 79600.00 | 50.00 | 1296.68 | 0.00 | 844.10 | 5.00 | 2110.69 | 0.00 | 1825.86 | 0.00 | 6653.09 | 8777.62 | 0.00 | 0.00 | -2124.53 |
| 796+50 | 79650.00 | 50.00 | 1461.50 | 0.00 | 728.20 | 6.00 | 2553.87 | 0.00 | 1455.83 | 0.00 | 9206.96 | 10379.03 | 0.00 | 0.00 | -1172.07 |
| 797+00 | 79700.00 | 50.00 | 861.05 | 0.00 | 1042.87 | 7.00 | 2150.51 | 0.00 | 1639.88 | 0.00 | 11357.47 | 12182.90 | 0.00 | 0.00 | -825.43 |
| 797+50 | 79750.00 | 50.00 | 51.11 | 0.00 | 2495.69 | 8.00 | 844.59 | 0.00 | 3276.44 | 0.00 | 12202.06 | 15786.99 | 0.00 | 0.00 | -3584.93 |
| 798+00 | 79800.00 | 50.00 | 0.07 | 0.00 | 3000.71 | 9.00 | 47.39 | 0.00 | 5089.26 | 0.00 | 12249.45 | 21385.18 | 0.00 | 0.00 | -9135.72 |
| 798+50 | 79850.00 | 50.00 | 3.00 | 0.00 | 615.73 | 10.00 | 2.84 | 0.00 | 3348.56 | 0.00 | 12252.29 | 25068.59 | 0.00 | 0.00 | -12816.29 |
| 799+00 | 79900.00 | 50.00 | 0.00 | 0.00 | 907.52 | 11.00 | 2.78 | 0.00 | 1410.42 | 0.00 | 12255.07 | 26620.04 | 0.00 | 0.00 | -14364.97 |
| 799+50 BK | 79950.00 | 50.00 | 0.00 | 0.00 | 6.99 | 0.00 | 0.00 | 0.00 | 846.77 | 0.00 | 12255.07 | 27551.49 | 0.00 | 0.00 | -15296.42 |
| | | | | | | Column totals | 12255.07 | 0.00 | 25046.81 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4799
September 14, 2015


9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:37 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew174 PLOT SCALE : 1:1

**Division 6 SW CORE POND (PSW)**

| STATION | | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10+01 | AH | 1001.00 | 0.00 | 790.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10+50 | | 1050.00 | 49.00 | 3875.98 | 0.00 | 0.00 | 0.00 | 4234.59 | 0.00 | 0.00 | 0.00 | 4234.59 | 0.00 | 0.00 | 0.00 | 4234.59 |
| 11+00 | | 1100.00 | 50.00 | 6134.44 | 0.00 | 0.62 | 0.00 | 9268.91 | 0.00 | 0.57 | 0.00 | 13503.50 | 0.63 | 0.00 | 0.00 | 13502.87 |
| 11+50 | | 1150.00 | 50.00 | 5275.17 | 0.00 | 5.62 | 0.00 | 10564.45 | 0.00 | 5.78 | 0.00 | 24067.95 | 6.99 | 0.00 | 0.00 | 24060.96 |
| 12+00 | | 1200.00 | 50.00 | 2260.30 | 0.00 | 60.77 | 0.00 | 6977.29 | 0.00 | 61.47 | 0.00 | 31045.24 | 74.61 | 0.00 | 0.00 | 30970.63 |
| 12+50 | | 1250.00 | 50.00 | 4641.17 | 0.00 | 29.58 | 0.00 | 6390.25 | 0.00 | 83.66 | 0.00 | 37435.49 | 166.63 | 0.00 | 0.00 | 37268.86 |
| 13+00 | | 1300.00 | 50.00 | 9015.36 | 0.00 | 60.79 | 0.00 | 12644.94 | 0.00 | 83.68 | 0.00 | 50080.42 | 258.67 | 0.00 | 0.00 | 49821.75 |
| 13+50 | | 1350.00 | 50.00 | 10963.67 | 0.00 | 0.00 | 0.00 | 18499.10 | 0.00 | 56.29 | 0.00 | 68579.52 | 320.59 | 0.00 | 0.00 | 68258.94 |
| 14+00 | | 1400.00 | 50.00 | 10744.42 | 0.00 | 72.75 | 0.00 | 20100.08 | 0.00 | 67.36 | 0.00 | 88679.61 | 394.69 | 0.00 | 0.00 | 88284.92 |
| 14+50 | | 1450.00 | 50.00 | 2908.63 | 0.00 | 0.00 | 0.00 | 12641.71 | 0.00 | 67.36 | 0.00 | 101321.32 | 468.78 | 0.00 | 0.00 | 100852.54 |
| 14+95 | BK | 1495.00 | 45.00 | 16.79 | 0.00 | 0.00 | 0.00 | 2437.85 | 0.00 | 0.00 | 0.00 | 103759.17 | 468.78 | 0.00 | 0.00 | 103290.39 |
| | | | | | | | Column totals | 103759.17 | 0.00 | 426.17 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4800
September 14, 2015

**Division 7 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) | | | | Incremental Vol (CY) (Unadjusted) | | | | Cumulative Vol (CY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Expanded Fill | Expanded EBS Backfill | Reduced EBS In Fill | Mass Ordinate |
| | | | | | | | Note 1 | Note 2 | Note 3 | | 1.00 Note 1 | 1.1 | 1.30 Note 4 | 0.80 Note 5 | Note 6 |
| 191+50 AH | 19150.00 | 0.00 | 44.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 192+00 | 19200.00 | 50.00 | 46.28 | 0.00 | 0.00 | 0.00 | 83.69 | 0.00 | 0.00 | 0.00 | 83.69 | 0.00 | 0.00 | 0.00 | 83.69 |
| 192+50 | 19250.00 | 50.00 | 55.31 | 0.00 | 0.00 | 0.00 | 94.06 | 0.00 | 0.00 | 0.00 | 177.76 | 0.00 | 0.00 | 0.00 | 177.76 |
| 193+00 | 19300.00 | 50.00 | 55.27 | 0.00 | 0.00 | 0.00 | 102.39 | 0.00 | 0.00 | 0.00 | 280.15 | 0.00 | 0.00 | 0.00 | 280.15 |
| 193+50 | 19350.00 | 50.00 | 56.71 | 0.00 | 0.00 | 0.00 | 103.69 | 0.00 | 0.00 | 0.00 | 383.83 | 0.00 | 0.00 | 0.00 | 383.83 |
| 194+00 | 19400.00 | 50.00 | 56.11 | 0.00 | 0.00 | 0.00 | 104.46 | 0.00 | 0.00 | 0.00 | 488.30 | 0.00 | 0.00 | 0.00 | 488.30 |
| 194+50 | 19450.00 | 50.00 | 55.29 | 0.00 | 0.00 | 0.00 | 103.15 | 0.00 | 0.00 | 0.00 | 591.44 | 0.00 | 0.00 | 0.00 | 591.44 |
| 195+00 | 19500.00 | 50.00 | 55.31 | 0.00 | 0.00 | 0.00 | 102.41 | 0.00 | 0.00 | 0.00 | 693.85 | 0.00 | 0.00 | 0.00 | 693.85 |
| 195+50 | 19550.00 | 50.00 | 55.18 | 0.00 | 0.00 | 0.00 | 102.31 | 0.00 | 0.00 | 0.00 | 796.16 | 0.00 | 0.00 | 0.00 | 796.16 |
| 196+00 | 19600.00 | 50.00 | 43.42 | 0.00 | 0.00 | 0.00 | 91.30 | 0.00 | 0.00 | 0.00 | 887.45 | 0.00 | 0.00 | 0.00 | 887.45 |
| 196+50 | 19650.00 | 50.00 | 43.26 | 0.00 | 0.00 | 0.00 | 80.26 | 0.00 | 0.00 | 0.00 | 967.71 | 0.00 | 0.00 | 0.00 | 967.71 |
| 197+00 | 19700.00 | 50.00 | 42.89 | 0.00 | 0.00 | 0.00 | 79.77 | 0.00 | 0.00 | 0.00 | 1047.48 | 0.00 | 0.00 | 0.00 | 1047.48 |
| 197+50 | 19750.00 | 50.00 | 42.46 | 0.00 | 0.00 | 0.00 | 79.03 | 0.00 | 0.00 | 0.00 | 1126.51 | 0.00 | 0.00 | 0.00 | 1126.51 |
| 198+00 | 19800.00 | 50.00 | 42.73 | 0.00 | 0.00 | 0.00 | 78.88 | 0.00 | 0.00 | 0.00 | 1205.39 | 0.00 | 0.00 | 0.00 | 1205.39 |
| 198+50 | 19850.00 | 50.00 | 42.77 | 0.00 | 0.00 | 0.00 | 79.17 | 0.00 | 0.00 | 0.00 | 1284.56 | 0.00 | 0.00 | 0.00 | 1284.56 |
| 199+00 | 19900.00 | 50.00 | 43.14 | 0.00 | 0.00 | 0.00 | 79.55 | 0.00 | 0.00 | 0.00 | 1364.10 | 0.00 | 0.00 | 0.00 | 1364.10 |
| 199+50 | 19950.00 | 50.00 | 42.92 | 0.00 | 0.00 | 0.00 | 79.69 | 0.00 | 0.00 | 0.00 | 1443.79 | 0.00 | 0.00 | 0.00 | 1443.79 |
| 200+00 | 20000.00 | 50.00 | 42.71 | 0.00 | 0.00 | 0.00 | 79.29 | 0.00 | 0.00 | 0.00 | 1523.07 | 0.00 | 0.00 | 0.00 | 1523.07 |
| 200+50 | 20050.00 | 50.00 | 42.11 | 0.00 | 0.00 | 0.00 | 78.54 | 0.00 | 0.00 | 0.00 | 1601.61 | 0.00 | 0.00 | 0.00 | 1601.61 |
| 201+00 | 20100.00 | 50.00 | 42.17 | 0.00 | 0.00 | 0.00 | 78.04 | 0.00 | 0.00 | 0.00 | 1679.65 | 0.00 | 0.00 | 0.00 | 1679.65 |
| 201+50 | 20150.00 | 50.00 | 42.41 | 0.00 | 0.00 | 0.00 | 78.31 | 0.00 | 0.00 | 0.00 | 1757.96 | 0.00 | 0.00 | 0.00 | 1757.96 |
| 202+00 | 20200.00 | 50.00 | 39.45 | 0.00 | 0.00 | 0.00 | 75.80 | 0.00 | 0.00 | 0.00 | 1833.76 | 0.00 | 0.00 | 0.00 | 1833.76 |
| 202+50 | 20250.00 | 50.00 | 36.25 | 0.00 | 0.00 | 0.00 | 70.09 | 0.00 | 0.00 | 0.00 | 1903.85 | 0.00 | 0.00 | 0.00 | 1903.85 |
| 203+00 | 20300.00 | 50.00 | 36.28 | 0.00 | 0.00 | 0.00 | 67.16 | 0.00 | 0.00 | 0.00 | 1971.01 | 0.00 | 0.00 | 0.00 | 1971.01 |
| 203+50 | 20350.00 | 50.00 | 42.02 | 0.00 | 0.00 | 0.00 | 72.50 | 0.00 | 0.00 | 0.00 | 2043.51 | 0.00 | 0.00 | 0.00 | 2043.51 |
| 204+00 | 20400.00 | 50.00 | 42.36 | 0.00 | 0.00 | 0.00 | 78.13 | 0.00 | 0.00 | 0.00 | 2121.64 | 0.00 | 0.00 | 0.00 | 2121.64 |
| 204+50 | 20450.00 | 50.00 | 43.19 | 0.00 | 0.00 | 0.00 | 79.21 | 0.00 | 0.00 | 0.00 | 2200.85 | 0.00 | 0.00 | 0.00 | 2200.85 |
| 205+00 | 20500.00 | 50.00 | 43.45 | 0.00 | 0.00 | 0.00 | 80.22 | 0.00 | 0.00 | 0.00 | 2281.07 | 0.00 | 0.00 | 0.00 | 2281.07 |
| 205+50 | 20550.00 | 50.00 | 44.51 | 0.00 | 0.00 | 0.00 | 81.44 | 0.00 | 0.00 | 0.00 | 2362.52 | 0.00 | 0.00 | 0.00 | 2362.52 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4801
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 7 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 206+00 | 20600.00 | 50.00 | 3.74 | 0.00 | 0.03 | 0.00 | 44.68 | 0.00 | 0.03 | 0.00 | 2407.19 | 0.03 | 0.00 | 0.00 | 2407.16 |
| 206+50 | 20650.00 | 50.00 | 3.67 | 0.00 | 0.06 | 0.00 | 6.86 | 0.00 | 0.08 | 0.00 | 2414.06 | 0.12 | 0.00 | 0.00 | 2413.93 |
| 207+00 | 20700.00 | 50.00 | 3.54 | 0.00 | 0.01 | 0.00 | 6.68 | 0.00 | 0.06 | 0.00 | 2420.73 | 0.19 | 0.00 | 0.00 | 2420.54 |
| 207+50 | 20750.00 | 50.00 | 5.18 | 0.00 | 0.00 | 0.00 | 8.07 | 0.00 | 0.01 | 0.00 | 2428.81 | 0.20 | 0.00 | 0.00 | 2428.60 |
| 208+00 | 20800.00 | 50.00 | 6.69 | 0.00 | 0.00 | 0.00 | 10.99 | 0.00 | 0.00 | 0.00 | 2439.80 | 0.20 | 0.00 | 0.00 | 2439.59 |
| 208+50 BK | 20850.00 | 50.00 | 8.91 | 0.00 | 0.00 | 0.00 | 14.44 | 0.00 | 0.00 | 0.00 | 2454.24 | 0.20 | 0.00 | 0.00 | 2454.04 |
| 314+34 AH | 31433.80 | 0.00 | 364.81 | 0.00 | 73.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 314+50 | 31450.00 | 16.20 | 331.17 | 0.00 | 81.64 | 0.00 | 208.79 | 0.00 | 46.42 | 0.00 | 208.79 | 51.06 | 0.00 | 0.00 | 157.73 |
| 315+00 | 31500.00 | 50.00 | 276.30 | 0.00 | 73.18 | 0.00 | 562.47 | 0.00 | 143.35 | 0.00 | 771.27 | 208.75 | 0.00 | 0.00 | 562.52 |
| 315+50 | 31550.00 | 50.00 | 320.00 | 0.00 | 14.51 | 0.00 | 552.13 | 0.00 | 81.19 | 0.00 | 1323.40 | 298.06 | 0.00 | 0.00 | 1025.33 |
| 316+00 | 31600.00 | 50.00 | 185.56 | 0.00 | 5.88 | 0.00 | 468.11 | 0.00 | 18.88 | 0.00 | 1791.51 | 318.83 | 0.00 | 0.00 | 1472.68 |
| 316+50 | 31650.00 | 50.00 | 141.07 | 0.00 | 6.50 | 0.00 | 302.44 | 0.00 | 11.46 | 0.00 | 2093.94 | 331.44 | 0.00 | 0.00 | 1762.50 |
| 317+00 | 31700.00 | 50.00 | 118.60 | 0.00 | 6.96 | 0.00 | 240.44 | 0.00 | 12.46 | 0.00 | 2334.38 | 345.15 | 0.00 | 0.00 | 1989.23 |
| 317+50 | 31750.00 | 50.00 | 94.88 | 0.00 | 0.00 | 0.00 | 197.67 | 0.00 | 6.44 | 0.00 | 2532.04 | 352.24 | 0.00 | 0.00 | 2179.81 |
| 318+00 | 31800.00 | 50.00 | 73.30 | 0.00 | 0.00 | 0.00 | 155.72 | 0.00 | 0.00 | 0.00 | 2687.77 | 352.24 | 0.00 | 0.00 | 2335.53 |
| 318+50 | 31850.00 | 50.00 | 60.81 | 0.00 | 0.00 | 0.00 | 124.18 | 0.00 | 0.00 | 0.00 | 2811.94 | 352.24 | 0.00 | 0.00 | 2459.71 |
| 319+00 | 31900.00 | 50.00 | 50.44 | 0.00 | 0.10 | 0.00 | 103.01 | 0.00 | 0.09 | 0.00 | 2914.95 | 352.34 | 0.00 | 0.00 | 2562.61 |
| 319+50 | 31950.00 | 50.00 | 40.56 | 0.00 | 1.17 | 0.00 | 84.26 | 0.00 | 1.18 | 0.00 | 2999.21 | 353.63 | 0.00 | 0.00 | 2645.58 |
| 320+00 BK | 32000.00 | 50.00 | 25.05 | 0.00 | 2.21 | 0.00 | 60.75 | 0.00 | 3.13 | 0.00 | 3059.96 | 357.07 | 0.00 | 0.00 | 2702.89 |
| | | | | | | Column totals | 5514.20 | 0.00 | 324.80 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4802
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:37 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew177 PLOT SCALE : 1:1

**Division 7 USH 45 SB**

| STATION | Real Station | Distance | AREA (SF) | | | | Incremental Vol (CY) (Unadjusted) | | | | Cumulative Vol (CY) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut | Expanded Fill | Expanded EBS Backfill | Reduced EBS In Fill | Mass Ordinate |
| | | | | | | | Note 1 | Note 2 | Note 3 | | Note 1 | 1.1 | 1.30 Note 4 | 0.80 Note 5 | Note 6 |
| 191+50 AH | 19150.00 | 0.00 | 45.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 192+00 | 19200.00 | 50.00 | 42.73 | 0.00 | 0.00 | 0.00 | 81.32 | 0.00 | 0.00 | 0.00 | 81.32 | 0.00 | 0.00 | 0.00 | 81.32 |
| 192+50 | 19250.00 | 50.00 | 37.99 | 0.00 | 0.00 | 0.00 | 74.74 | 0.00 | 0.00 | 0.00 | 156.06 | 0.00 | 0.00 | 0.00 | 156.06 |
| 193+00 | 19300.00 | 50.00 | 36.69 | 0.00 | 0.00 | 0.00 | 69.15 | 0.00 | 0.00 | 0.00 | 225.21 | 0.00 | 0.00 | 0.00 | 225.21 |
| 193+50 | 19350.00 | 50.00 | 36.38 | 0.00 | 0.00 | 0.00 | 67.66 | 0.00 | 0.00 | 0.00 | 292.87 | 0.00 | 0.00 | 0.00 | 292.87 |
| 194+00 | 19400.00 | 50.00 | 35.87 | 0.00 | 0.00 | 0.00 | 66.90 | 0.00 | 0.00 | 0.00 | 359.77 | 0.00 | 0.00 | 0.00 | 359.77 |
| 194+50 | 19450.00 | 50.00 | 36.11 | 0.00 | 0.00 | 0.00 | 66.65 | 0.00 | 0.00 | 0.00 | 426.42 | 0.00 | 0.00 | 0.00 | 426.42 |
| 195+00 | 19500.00 | 50.00 | 36.57 | 0.00 | 0.00 | 0.00 | 67.30 | 0.00 | 0.00 | 0.00 | 493.71 | 0.00 | 0.00 | 0.00 | 493.71 |
| 195+50 | 19550.00 | 50.00 | 37.13 | 0.00 | 0.00 | 0.00 | 68.24 | 0.00 | 0.00 | 0.00 | 561.95 | 0.00 | 0.00 | 0.00 | 561.95 |
| 196+00 | 19600.00 | 50.00 | 49.01 | 0.00 | 0.00 | 0.00 | 79.76 | 0.00 | 0.00 | 0.00 | 641.71 | 0.00 | 0.00 | 0.00 | 641.71 |
| 196+50 | 19650.00 | 50.00 | 49.25 | 0.00 | 0.00 | 0.00 | 90.98 | 0.00 | 0.00 | 0.00 | 732.69 | 0.00 | 0.00 | 0.00 | 732.69 |
| 197+00 | 19700.00 | 50.00 | 51.24 | 0.00 | 0.00 | 0.00 | 93.05 | 0.00 | 0.00 | 0.00 | 825.74 | 0.00 | 0.00 | 0.00 | 825.74 |
| 197+50 | 19750.00 | 50.00 | 51.25 | 0.00 | 0.00 | 0.00 | 94.90 | 0.00 | 0.00 | 0.00 | 920.64 | 0.00 | 0.00 | 0.00 | 920.64 |
| 198+00 | 19800.00 | 50.00 | 51.80 | 0.00 | 0.00 | 0.00 | 95.42 | 0.00 | 0.00 | 0.00 | 1016.06 | 0.00 | 0.00 | 0.00 | 1016.06 |
| 198+50 | 19850.00 | 50.00 | 53.06 | 0.00 | 0.00 | 0.00 | 97.09 | 0.00 | 0.00 | 0.00 | 1113.15 | 0.00 | 0.00 | 0.00 | 1113.15 |
| 199+00 | 19900.00 | 50.00 | 54.54 | 0.00 | 0.00 | 0.00 | 99.63 | 0.00 | 0.00 | 0.00 | 1212.78 | 0.00 | 0.00 | 0.00 | 1212.78 |
| 199+50 | 19950.00 | 50.00 | 53.28 | 0.00 | 0.00 | 0.00 | 99.83 | 0.00 | 0.00 | 0.00 | 1312.61 | 0.00 | 0.00 | 0.00 | 1312.61 |
| 200+00 | 20000.00 | 50.00 | 55.67 | 0.00 | 0.00 | 0.00 | 100.88 | 0.00 | 0.00 | 0.00 | 1413.49 | 0.00 | 0.00 | 0.00 | 1413.49 |
| 200+50 | 20050.00 | 50.00 | 57.31 | 0.00 | 0.00 | 0.00 | 104.61 | 0.00 | 0.00 | 0.00 | 1518.10 | 0.00 | 0.00 | 0.00 | 1518.10 |
| 201+00 | 20100.00 | 50.00 | 57.97 | 0.00 | 0.00 | 0.00 | 106.74 | 0.00 | 0.00 | 0.00 | 1624.84 | 0.00 | 0.00 | 0.00 | 1624.84 |
| 201+50 | 20150.00 | 50.00 | 59.58 | 0.00 | 0.00 | 0.00 | 108.84 | 0.00 | 0.00 | 0.00 | 1733.69 | 0.00 | 0.00 | 0.00 | 1733.69 |
| 202+00 | 20200.00 | 50.00 | 51.41 | 0.00 | 0.00 | 0.00 | 102.77 | 0.00 | 0.00 | 0.00 | 1836.45 | 0.00 | 0.00 | 0.00 | 1836.45 |
| 202+50 | 20250.00 | 50.00 | 51.02 | 0.00 | 0.00 | 0.00 | 94.84 | 0.00 | 0.00 | 0.00 | 1931.30 | 0.00 | 0.00 | 0.00 | 1931.30 |
| 203+00 | 20300.00 | 50.00 | 51.94 | 0.00 | 0.00 | 0.00 | 95.33 | 0.00 | 0.00 | 0.00 | 2026.63 | 0.00 | 0.00 | 0.00 | 2026.63 |
| 203+50 | 20350.00 | 50.00 | 58.88 | 0.00 | 0.00 | 0.00 | 102.61 | 0.00 | 0.00 | 0.00 | 2129.24 | 0.00 | 0.00 | 0.00 | 2129.24 |
| 204+00 | 20400.00 | 50.00 | 57.67 | 0.00 | 0.00 | 0.00 | 107.92 | 0.00 | 0.00 | 0.00 | 2237.16 | 0.00 | 0.00 | 0.00 | 2237.16 |
| 204+50 | 20450.00 | 50.00 | 57.42 | 0.00 | 0.00 | 0.00 | 106.56 | 0.00 | 0.00 | 0.00 | 2343.72 | 0.00 | 0.00 | 0.00 | 2343.72 |
| 205+00 | 20500.00 | 50.00 | 57.19 | 0.00 | 0.00 | 0.00 | 106.12 | 0.00 | 0.00 | 0.00 | 2449.84 | 0.00 | 0.00 | 0.00 | 2449.84 |
| 205+50 | 20550.00 | 50.00 | 56.78 | 0.00 | 0.00 | 0.00 | 105.53 | 0.00 | 0.00 | 0.00 | 2555.37 | 0.00 | 0.00 | 0.00 | 2555.37 |
| 206+00 | 20600.00 | 50.00 | 56.67 | 0.00 | 0.00 | 0.00 | 105.05 | 0.00 | 0.00 | 0.00 | 2660.42 | 0.00 | 0.00 | 0.00 | 2660.42 |
| 206+50 | 20650.00 | 50.00 | 55.37 | 0.00 | 0.00 | 0.00 | 103.74 | 0.00 | 0.00 | 0.00 | 2764.16 | 0.00 | 0.00 | 0.00 | 2764.16 |
| 206+97 | 20697.00 | 47.00 | 57.68 | 0.00 | 0.00 | 0.00 | 98.40 | 0.00 | 0.00 | 0.00 | 2862.55 | 0.00 | 0.00 | 0.00 | 2862.55 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4803
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 7 USH 45 SB**

| STATION | | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut Note 1 | Expanded Fill 1.1 | Expanded EBS Backfill 1.30 Note 4 | Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 206+97 | | 20697.00 | 0.00 | 152.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2862.55 | 0.00 | 0.00 | 0.00 | 2862.55 |
| 207+00 | | 20700.00 | 3.00 | 117.29 | 0.00 | 0.00 | 0.00 | 15.01 | 0.00 | 0.00 | 0.00 | 2877.57 | 0.00 | 0.00 | 0.00 | 2877.57 |
| 207+50 | | 20750.00 | 50.00 | 150.39 | 0.00 | 0.00 | 0.00 | 247.85 | 0.00 | 0.00 | 0.00 | 3125.42 | 0.00 | 0.00 | 0.00 | 3125.42 |
| 208+00 | | 20800.00 | 50.00 | 137.88 | 0.00 | 0.00 | 0.00 | 266.92 | 0.00 | 0.00 | 0.00 | 3392.33 | 0.00 | 0.00 | 0.00 | 3392.33 |
| 208+05 | | 20805.00 | 5.00 | 98.79 | 0.00 | 0.00 | 0.00 | 21.91 | 0.00 | 0.00 | 0.00 | 3414.25 | 0.00 | 0.00 | 0.00 | 3414.25 |
| 208+05 | | 20805.00 | 0.00 | 113.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3414.25 | 0.00 | 0.00 | 0.00 | 3414.25 |
| 208+50 | | 20850.00 | 45.00 | 113.77 | 0.00 | 0.00 | 0.00 | 189.06 | 0.00 | 0.00 | 0.00 | 3603.31 | 0.00 | 0.00 | 0.00 | 3603.31 |
| 209+00 | | 20900.00 | 50.00 | 115.24 | 0.00 | 0.01 | 0.00 | 212.05 | 0.00 | 0.01 | 0.00 | 3815.35 | 0.01 | 0.00 | 0.00 | 3815.34 |
| 209+50 | | 20950.00 | 50.00 | 143.60 | 0.00 | 0.00 | 0.00 | 239.67 | 0.00 | 0.01 | 0.00 | 4055.02 | 0.02 | 0.00 | 0.00 | 4055.00 |
| 210+00 | | 21000.00 | 50.00 | 146.68 | 0.00 | 0.00 | 0.00 | 268.78 | 0.00 | 0.00 | 0.00 | 4323.80 | 0.02 | 0.00 | 0.00 | 4323.78 |
| 210+50 | | 21050.00 | 50.00 | 150.57 | 0.00 | 0.00 | 0.00 | 275.23 | 0.00 | 0.00 | 0.00 | 4599.03 | 0.02 | 0.00 | 0.00 | 4599.01 |
| 211+00 | | 21100.00 | 50.00 | 152.51 | 0.00 | 0.00 | 0.00 | 282.43 | 0.00 | 0.00 | 0.00 | 4881.45 | 0.02 | 0.00 | 0.00 | 4881.43 |
| 211+00 | | 21100.00 | 0.00 | 122.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4881.45 | 0.02 | 0.00 | 0.00 | 4881.43 |
| 211+50 | | 21150.00 | 50.00 | 123.02 | 0.00 | 0.00 | 0.00 | 227.23 | 0.00 | 0.00 | 0.00 | 5108.69 | 0.02 | 0.00 | 0.00 | 5108.67 |
| 212+00 | | 21200.00 | 50.00 | 119.72 | 0.00 | 0.00 | 0.00 | 224.76 | 0.00 | 0.00 | 0.00 | 5333.45 | 0.02 | 0.00 | 0.00 | 5333.42 |
| 212+50 | | 21250.00 | 50.00 | 112.52 | 0.00 | 0.00 | 0.00 | 215.04 | 0.00 | 0.00 | 0.00 | 5548.48 | 0.02 | 0.00 | 0.00 | 5548.46 |
| 213+00 | | 21300.00 | 50.00 | 101.49 | 0.00 | 0.00 | 0.00 | 198.16 | 0.00 | 0.00 | 0.00 | 5746.64 | 0.02 | 0.00 | 0.00 | 5746.62 |
| 213+50 | | 21350.00 | 50.00 | 86.29 | 0.00 | 0.00 | 0.00 | 173.87 | 0.00 | 0.00 | 0.00 | 5920.51 | 0.02 | 0.00 | 0.00 | 5920.49 |
| 214+00 | | 21400.00 | 50.00 | 66.47 | 0.00 | 0.00 | 0.00 | 141.44 | 0.00 | 0.00 | 0.00 | 6061.95 | 0.02 | 0.00 | 0.00 | 6061.93 |
| 214+00 | | 21400.00 | 0.00 | 51.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6061.95 | 0.02 | 0.00 | 0.00 | 6061.93 |
| 214+50 | | 21450.00 | 50.00 | 36.30 | 0.00 | 0.00 | 0.00 | 80.97 | 0.00 | 0.00 | 0.00 | 6142.93 | 0.02 | 0.00 | 0.00 | 6142.91 |
| 215+00 | | 21500.00 | 50.00 | 25.45 | 0.00 | 0.00 | 0.00 | 57.18 | 0.00 | 0.00 | 0.00 | 6200.10 | 0.02 | 0.00 | 0.00 | 6200.08 |
| 215+50 | | 21550.00 | 50.00 | 19.52 | 0.00 | 0.00 | 0.00 | 41.64 | 0.00 | 0.00 | 0.00 | 6241.74 | 0.02 | 0.00 | 0.00 | 6241.72 |
| 216+00 | | 21600.00 | 50.00 | 15.81 | 0.00 | 0.00 | 0.00 | 32.71 | 0.00 | 0.00 | 0.00 | 6274.45 | 0.02 | 0.00 | 0.00 | 6274.43 |
| 216+50 | | 21650.00 | 50.00 | 9.42 | 0.00 | 0.00 | 0.00 | 23.36 | 0.00 | 0.00 | 0.00 | 6297.82 | 0.02 | 0.00 | 0.00 | 6297.80 |
| 217+00 | BK | 21700.00 | 50.00 | 5.26 | 0.00 | 0.43 | 0.00 | 13.59 | 0.00 | 0.40 | 0.00 | 6311.41 | 0.46 | 0.00 | 0.00 | 6310.95 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4804
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 7 USH 45 SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 269+00 AH | 26900.00 | 0.00 | 18.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 269+50 | 26950.00 | 50.00 | 15.27 | 0.00 | 0.01 | 0.00 | 31.35 | 0.00 | 0.01 | 0.00 | 31.35 | 0.01 | 0.00 | 0.00 | 31.34 |
| 270+00 | 27000.00 | 50.00 | 11.24 | 0.00 | 0.01 | 0.00 | 24.55 | 0.00 | 0.02 | 0.00 | 55.90 | 0.03 | 0.00 | 0.00 | 55.87 |
| 270+50 | 27050.00 | 50.00 | 7.20 | 0.00 | 0.01 | 0.00 | 17.07 | 0.00 | 0.02 | 0.00 | 72.97 | 0.05 | 0.00 | 0.00 | 72.92 |
| 271+00 | 27100.00 | 50.00 | 3.96 | 0.00 | 0.01 | 0.00 | 10.33 | 0.00 | 0.02 | 0.00 | 83.31 | 0.07 | 0.00 | 0.00 | 83.23 |
| 271+50 | 27150.00 | 50.00 | 0.88 | 0.00 | 0.33 | 0.00 | 4.48 | 0.00 | 0.31 | 0.00 | 87.79 | 0.42 | 0.00 | 0.00 | 87.37 |
| 272+00 | 27200.00 | 50.00 | 0.00 | 0.00 | 3.36 | 0.00 | 0.81 | 0.00 | 3.42 | 0.00 | 88.60 | 4.18 | 0.00 | 0.00 | 84.43 |
| 272+50 | 27250.00 | 50.00 | 0.00 | 0.00 | 7.43 | 0.00 | 0.00 | 0.00 | 9.99 | 0.00 | 88.60 | 15.17 | 0.00 | 0.00 | 73.44 |
| 273+00 | 27300.00 | 50.00 | 0.00 | 0.00 | 13.04 | 0.00 | 0.00 | 0.00 | 18.95 | 0.00 | 88.60 | 36.01 | 0.00 | 0.00 | 52.59 |
| 273+22 BK | 27322.40 | 22.40 | 0.00 | 0.00 | 14.30 | 0.00 | 0.00 | 0.00 | 11.34 | 0.00 | 88.60 | 48.49 | 0.00 | 0.00 | 40.11 |
| | | Column totals | | | | | 6400.01 | 0.00 | 44.50 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4805
September 14, 2015


9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:37 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew180 PLOT SCALE : 1:1

**Division 7 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 88+00 AH | 8800 | 0.00 | 50.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88+50 | 8850 | 50.00 | 47.39 | 0.00 | 0.00 | 0.00 | 90.18 | 0.00 | 0.00 | 0.00 | 90.18 | 0.00 | 0.00 | 0.00 | 90.18 |
| 89+00 | 8900 | 50.00 | 48.42 | 0.00 | 0.00 | 0.00 | 88.71 | 0.00 | 0.00 | 0.00 | 178.89 | 0.00 | 0.00 | 0.00 | 178.89 |
| 89+50 | 8950 | 50.00 | 48.67 | 0.00 | 0.00 | 0.00 | 89.90 | 0.00 | 0.00 | 0.00 | 268.79 | 0.00 | 0.00 | 0.00 | 268.79 |
| 90+00 | 9000 | 50.00 | 48.02 | 0.00 | 0.00 | 0.00 | 89.53 | 0.00 | 0.00 | 0.00 | 358.31 | 0.00 | 0.00 | 0.00 | 358.31 |
| 90+50 | 9050 | 50.00 | 45.80 | 0.00 | 0.00 | 0.00 | 86.87 | 0.00 | 0.00 | 0.00 | 445.19 | 0.00 | 0.00 | 0.00 | 445.19 |
| 91+00 | 9100 | 50.00 | 42.30 | 0.00 | 0.00 | 0.00 | 81.57 | 0.00 | 0.00 | 0.00 | 526.76 | 0.00 | 0.00 | 0.00 | 526.76 |
| 91+50 | 9150 | 50.00 | 39.46 | 0.00 | 0.00 | 0.00 | 75.70 | 0.00 | 0.00 | 0.00 | 602.46 | 0.00 | 0.00 | 0.00 | 602.46 |
| 92+00 | 9200 | 50.00 | 35.62 | 0.00 | 0.00 | 0.00 | 69.52 | 0.00 | 0.00 | 0.00 | 671.98 | 0.00 | 0.00 | 0.00 | 671.98 |
| 92+50 | 9250 | 50.00 | 33.42 | 0.00 | 0.00 | 0.00 | 63.93 | 0.00 | 0.00 | 0.00 | 735.91 | 0.00 | 0.00 | 0.00 | 735.91 |
| 93+00 | 9300 | 50.00 | 29.00 | 0.00 | 0.00 | 0.00 | 57.80 | 0.00 | 0.00 | 0.00 | 793.70 | 0.00 | 0.00 | 0.00 | 793.70 |
| 93+50 BK | 9350 | 50.00 | 23.57 | 0.00 | 0.01 | 0.00 | 48.68 | 0.00 | 0.01 | 0.00 | 842.38 | 0.01 | 0.00 | 0.00 | 842.37 |
| | | Column totals | | | | | 842.38 | 0.00 | 0.01 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4806
September 14, 2015

**Division 7 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 117+00 AH | 11700.00 | 0.00 | 0.00 | 0.00 | 116.85 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117+50 | 11750.00 | 50.00 | 0.00 | 0.00 | 126.61 | 0.00 | 0.00 | 0.00 | 225.43 | 0.00 | 0.00 | 247.97 | 0.00 | 0.00 | -247.97 |
| 118+00 | 11800.00 | 50.00 | 0.00 | 0.00 | 132.82 | 0.00 | 0.00 | 0.00 | 240.21 | 0.00 | 0.00 | 512.20 | 0.00 | 0.00 | -512.20 |
| 118+50 | 11850.00 | 50.00 | 0.00 | 0.00 | 135.99 | 0.00 | 0.00 | 0.00 | 248.90 | 0.00 | 0.00 | 785.99 | 0.00 | 0.00 | -785.99 |
| 119+00 | 11900.00 | 50.00 | 0.00 | 0.00 | 135.11 | 0.00 | 0.00 | 0.00 | 251.02 | 0.00 | 0.00 | 1062.11 | 0.00 | 0.00 | -1062.11 |
| 119+50 | 11950.00 | 50.00 | 0.00 | 0.00 | 132.18 | 0.00 | 0.00 | 0.00 | 247.49 | 0.00 | 0.00 | 1334.35 | 0.00 | 0.00 | -1334.35 |
| 120+00 | 12000.00 | 50.00 | 0.00 | 0.00 | 129.12 | 0.00 | 0.00 | 0.00 | 241.94 | 0.00 | 0.00 | 1600.49 | 0.00 | 0.00 | -1600.49 |
| 120+50 | 12050.00 | 50.00 | 0.00 | 0.00 | 124.03 | 0.00 | 0.00 | 0.00 | 234.40 | 0.00 | 0.00 | 1858.33 | 0.00 | 0.00 | -1858.33 |
| 121+00 | 12100.00 | 50.00 | 0.00 | 0.00 | 116.46 | 0.00 | 0.00 | 0.00 | 222.68 | 0.00 | 0.00 | 2103.27 | 0.00 | 0.00 | -2103.27 |
| 121+50 | 12150.00 | 50.00 | 0.00 | 0.00 | 108.27 | 0.00 | 0.00 | 0.00 | 208.08 | 0.00 | 0.00 | 2332.16 | 0.00 | 0.00 | -2332.16 |
| 122+00 | 12200.00 | 50.00 | 0.00 | 0.00 | 100.14 | 0.00 | 0.00 | 0.00 | 192.97 | 0.00 | 0.00 | 2544.43 | 0.00 | 0.00 | -2544.43 |
| 122+50 | 12250.00 | 50.00 | 0.00 | 0.00 | 90.86 | 0.00 | 0.00 | 0.00 | 176.85 | 0.00 | 0.00 | 2738.97 | 0.00 | 0.00 | -2738.97 |
| 123+00 | 12300.00 | 50.00 | 0.00 | 0.00 | 81.92 | 0.00 | 0.00 | 0.00 | 159.98 | 0.00 | 0.00 | 2914.95 | 0.00 | 0.00 | -2914.95 |
| 123+50 | 12350.00 | 50.00 | 0.00 | 0.00 | 72.10 | 0.00 | 0.00 | 0.00 | 142.61 | 0.00 | 0.00 | 3071.82 | 0.00 | 0.00 | -3071.82 |
| 124+00 | 12400.00 | 50.00 | 0.00 | 0.00 | 62.23 | 0.00 | 0.00 | 0.00 | 124.38 | 0.00 | 0.00 | 3208.64 | 0.00 | 0.00 | -3208.64 |
| 124+50 | 12450.00 | 50.00 | 0.00 | 0.00 | 52.35 | 0.00 | 0.00 | 0.00 | 106.09 | 0.00 | 0.00 | 3325.34 | 0.00 | 0.00 | -3325.34 |
| 125+00 | 12500.00 | 50.00 | 0.00 | 0.00 | 43.10 | 0.00 | 0.00 | 0.00 | 88.38 | 0.00 | 0.00 | 3422.56 | 0.00 | 0.00 | -3422.56 |
| 125+50 | 12550.00 | 50.00 | 0.00 | 0.00 | 49.09 | 0.00 | 0.00 | 0.00 | 85.36 | 0.00 | 0.00 | 3516.46 | 0.00 | 0.00 | -3516.46 |
| 126+00 | 12600.00 | 50.00 | 0.00 | 0.00 | 40.42 | 0.00 | 0.00 | 0.00 | 82.88 | 0.00 | 0.00 | 3607.62 | 0.00 | 0.00 | -3607.62 |
| 126+50 | 12650.00 | 50.00 | 0.00 | 0.00 | 33.94 | 0.00 | 0.00 | 0.00 | 68.85 | 0.00 | 0.00 | 3683.36 | 0.00 | 0.00 | -3683.36 |
| 126+86 | 12685.83 | 35.83 | 0.00 | 0.00 | 149.19 | 0.00 | 0.00 | 0.00 | 121.51 | 0.00 | 0.00 | 3817.02 | 0.00 | 0.00 | -3817.02 |
| 128+66 BK | 12865.50 | 179.67 | 0.00 | 0.00 | 475.09 | 0.00 | 0.00 | 0.00 | 2077.12 | 0.00 | 0.00 | 6101.85 | 0.00 | 0.00 | -6101.85 |
| | | | | | | Column totals | 0.00 | 0.00 | 5547.14 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4807
September 14, 2015

**Division 7 IH 94 EB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 147+00 AH | 14700.00 | 0.00 | 21.17 | 0.00 | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147+50 | 14750.00 | 50.00 | 25.38 | 0.00 | 0.03 | 0.00 | 43.10 | 0.00 | 0.19 | 0.00 | 43.10 | 0.20 | 0.00 | 0.00 | 42.90 |
| 148+00 | 14800.00 | 50.00 | 29.23 | 0.00 | 0.02 | 0.00 | 50.56 | 0.00 | 0.05 | 0.00 | 93.67 | 0.25 | 0.00 | 0.00 | 93.41 |
| 148+50 | 14850.00 | 50.00 | 30.36 | 0.00 | 0.01 | 0.00 | 55.18 | 0.00 | 0.03 | 0.00 | 148.84 | 0.29 | 0.00 | 0.00 | 148.56 |
| 149+00 | 14900.00 | 50.00 | 31.51 | 0.00 | 0.01 | 0.00 | 57.29 | 0.00 | 0.02 | 0.00 | 206.13 | 0.31 | 0.00 | 0.00 | 205.82 |
| 149+50 | 14950.00 | 50.00 | 33.09 | 0.00 | 0.01 | 0.00 | 59.81 | 0.00 | 0.02 | 0.00 | 265.94 | 0.33 | 0.00 | 0.00 | 265.62 |
| 150+00 | 15000.00 | 50.00 | 35.41 | 0.00 | 0.01 | 0.00 | 63.43 | 0.00 | 0.02 | 0.00 | 329.37 | 0.35 | 0.00 | 0.00 | 329.02 |
| 150+50 | 15050.00 | 50.00 | 36.01 | 0.00 | 0.01 | 0.00 | 66.13 | 0.00 | 0.02 | 0.00 | 395.50 | 0.37 | 0.00 | 0.00 | 395.13 |
| 151+00 | 15100.00 | 50.00 | 36.01 | 0.00 | 0.01 | 0.00 | 66.69 | 0.00 | 0.02 | 0.00 | 462.19 | 0.39 | 0.00 | 0.00 | 461.80 |
| 151+50 | 15150.00 | 50.00 | 36.01 | 0.00 | 0.01 | 0.00 | 66.69 | 0.00 | 0.02 | 0.00 | 528.87 | 0.41 | 0.00 | 0.00 | 528.46 |
| 152+00 | 15200.00 | 50.00 | 36.01 | 0.00 | 0.01 | 0.00 | 66.69 | 0.00 | 0.02 | 0.00 | 595.56 | 0.43 | 0.00 | 0.00 | 595.13 |
| 152+50 | 15250.00 | 50.00 | 36.00 | 0.00 | 0.01 | 0.00 | 66.68 | 0.00 | 0.02 | 0.00 | 662.23 | 0.45 | 0.00 | 0.00 | 661.78 |
| 152+95 BK | 15294.99 | 44.99 | 45.30 | 0.00 | 0.00 | 0.00 | 67.73 | 0.00 | 0.01 | 0.00 | 729.97 | 0.46 | 0.00 | 0.00 | 729.51 |
| | | | | | | Column totals | 729.97 | 0.00 | 0.42 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4808
September 14, 2015

**Division 7 IH 94 WB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 88+00 AH | 8800.00 | 0.00 | 111.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88+50 | 8850.00 | 50.00 | 111.53 | 0.00 | 0.00 | 0.00 | 206.27 | 0.00 | 0.00 | 0.00 | 206.27 | 0.00 | 0.00 | 0.00 | 206.27 |
| 89+00 | 8900.00 | 50.00 | 111.82 | 0.00 | 0.00 | 0.00 | 206.81 | 0.00 | 0.00 | 0.00 | 413.07 | 0.00 | 0.00 | 0.00 | 413.07 |
| 89+00 | 8900.00 | 0.00 | 83.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 413.07 | 0.00 | 0.00 | 0.00 | 413.07 |
| 89+50 | 8950.00 | 50.00 | 83.41 | 0.00 | 0.00 | 0.00 | 154.52 | 0.00 | 0.00 | 0.00 | 567.59 | 0.00 | 0.00 | 0.00 | 567.59 |
| 90+00 | 9000.00 | 50.00 | 82.34 | 0.00 | 0.00 | 0.00 | 153.47 | 0.00 | 0.00 | 0.00 | 721.06 | 0.00 | 0.00 | 0.00 | 721.06 |
| 90+50 | 9050.00 | 50.00 | 80.10 | 0.00 | 0.00 | 0.00 | 150.41 | 0.00 | 0.00 | 0.00 | 871.47 | 0.00 | 0.00 | 0.00 | 871.47 |
| 91+00 | 9100.00 | 50.00 | 74.70 | 0.00 | 0.00 | 0.00 | 143.33 | 0.00 | 0.00 | 0.00 | 1014.81 | 0.00 | 0.00 | 0.00 | 1014.81 |
| 91+00 | 9100.00 | 0.00 | 44.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1014.81 | 0.00 | 0.00 | 0.00 | 1014.81 |
| 91+50 | 9150.00 | 50.00 | 40.95 | 0.00 | 0.00 | 0.00 | 78.81 | 0.00 | 0.00 | 0.00 | 1093.62 | 0.00 | 0.00 | 0.00 | 1093.62 |
| 92+00 | 9200.00 | 50.00 | 37.73 | 0.00 | 0.00 | 0.00 | 72.85 | 0.00 | 0.00 | 0.00 | 1166.47 | 0.00 | 0.00 | 0.00 | 1166.47 |
| 92+50 | 9250.00 | 50.00 | 35.38 | 0.00 | 0.00 | 0.00 | 67.69 | 0.00 | 0.00 | 0.00 | 1234.17 | 0.00 | 0.00 | 0.00 | 1234.17 |
| 93+00 | 9300.00 | 50.00 | 31.77 | 0.00 | 0.00 | 0.00 | 62.18 | 0.00 | 0.00 | 0.00 | 1296.34 | 0.00 | 0.00 | 0.00 | 1296.34 |
| 93+50 | 9350.00 | 50.00 | 28.10 | 0.00 | 0.00 | 0.00 | 55.44 | 0.00 | 0.00 | 0.00 | 1351.78 | 0.00 | 0.00 | 0.00 | 1351.78 |
| 94+00 BK | 9400.00 | 50.00 | 16.33 | 0.00 | 0.01 | 0.00 | 41.14 | 0.00 | 0.01 | 0.00 | 1392.92 | 0.01 | 0.00 | 0.00 | 1392.91 |
| | | Column totals | | | | | 1392.92 | 0.00 | 0.01 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4809
September 14, 2015

**Division 7 IH 94 WB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 148+65 AH | 14865.00 | 0.00 | 45.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149+00 | 14900.00 | 35.00 | 43.55 | 0.00 | 0.00 | 0.00 | 57.44 | 0.00 | 0.00 | 0.00 | 57.44 | 0.00 | 0.00 | 0.00 | 57.44 |
| 149+50 | 14950.00 | 50.00 | 43.91 | 0.00 | 0.00 | 0.00 | 80.98 | 0.00 | 0.00 | 0.00 | 138.42 | 0.00 | 0.00 | 0.00 | 138.42 |
| 150+00 | 15000.00 | 50.00 | 42.98 | 0.00 | 0.00 | 0.00 | 80.45 | 0.00 | 0.00 | 0.00 | 218.87 | 0.00 | 0.00 | 0.00 | 218.87 |
| 150+09 | 15008.73 | 8.73 | 42.84 | 0.00 | 0.00 | 0.00 | 13.87 | 0.00 | 0.00 | 0.00 | 232.75 | 0.00 | 0.00 | 0.00 | 232.75 |
| 150+50 | 15050.00 | 41.27 | 41.78 | 0.00 | 0.00 | 0.00 | 64.67 | 0.00 | 0.00 | 0.00 | 297.42 | 0.00 | 0.00 | 0.00 | 297.42 |
| 151+00 | 15100.00 | 50.00 | 42.68 | 0.00 | 0.00 | 0.00 | 78.20 | 0.00 | 0.00 | 0.00 | 375.62 | 0.00 | 0.00 | 0.00 | 375.62 |
| 151+50 | 15150.00 | 50.00 | 42.84 | 0.00 | 0.00 | 0.00 | 79.19 | 0.00 | 0.00 | 0.00 | 454.81 | 0.00 | 0.00 | 0.00 | 454.81 |
| 152+00 | 15200.00 | 50.00 | 41.72 | 0.00 | 0.00 | 0.00 | 78.30 | 0.00 | 0.00 | 0.00 | 533.11 | 0.00 | 0.00 | 0.00 | 533.11 |
| 152+50 | 15250.00 | 50.00 | 45.29 | 0.00 | 0.00 | 0.00 | 80.56 | 0.00 | 0.00 | 0.00 | 613.67 | 0.00 | 0.00 | 0.00 | 613.67 |
| 153+00 | 15300.00 | 50.00 | 48.49 | 0.00 | 0.00 | 0.00 | 86.83 | 0.00 | 0.00 | 0.00 | 700.50 | 0.00 | 0.00 | 0.00 | 700.50 |
| 153+50 | 15350.00 | 50.00 | 47.22 | 0.00 | 0.00 | 0.00 | 88.62 | 0.00 | 0.00 | 0.00 | 789.12 | 0.00 | 0.00 | 0.00 | 789.12 |
| 154+00 | 15400.00 | 50.00 | 41.70 | 0.00 | 0.00 | 0.00 | 82.33 | 0.00 | 0.00 | 0.00 | 871.46 | 0.00 | 0.00 | 0.00 | 871.46 |
| 154+50 | 15450.00 | 50.00 | 37.92 | 0.00 | 0.00 | 0.00 | 73.72 | 0.00 | 0.00 | 0.00 | 945.18 | 0.00 | 0.00 | 0.00 | 945.18 |
| 154+74 BK | 15474.20 | 24.20 | 37.84 | 0.00 | 0.00 | 0.00 | 33.95 | 0.00 | 0.00 | 0.00 | 979.13 | 0.00 | 0.00 | 0.00 | 979.13 |
| | | | | | Column totals | | 979.13 | 0.00 | 0.00 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4810
September 14, 2015

**Division 7 RAMP WS**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 545+30 AH | 54530.00 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 545+50 | 54550.00 | 20.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.41 | 0.00 | 0.00 | 0.00 | 0.41 | 0.00 | 0.00 | 0.00 | 0.41 |
| 546+00 | 54600.00 | 50.00 | 3.42 | 0.00 | 0.00 | 0.00 | 4.09 | 0.00 | 0.00 | 0.00 | 4.51 | 0.00 | 0.00 | 0.00 | 4.51 |
| 546+50 | 54650.00 | 50.00 | 5.75 | 0.00 | 0.00 | 0.00 | 8.49 | 0.00 | 0.00 | 0.00 | 13.00 | 0.00 | 0.00 | 0.00 | 13.00 |
| 547+00 | 54700.00 | 50.00 | 6.99 | 0.00 | 0.00 | 0.00 | 11.80 | 0.00 | 0.00 | 0.00 | 24.79 | 0.00 | 0.00 | 0.00 | 24.79 |
| 547+50 | 54750.00 | 50.00 | 7.71 | 0.00 | 0.00 | 0.00 | 13.61 | 0.00 | 0.00 | 0.00 | 38.41 | 0.00 | 0.00 | 0.00 | 38.41 |
| 548+00 | 54800.00 | 50.00 | 8.43 | 0.00 | 0.00 | 0.00 | 14.94 | 0.00 | 0.00 | 0.00 | 53.35 | 0.00 | 0.00 | 0.00 | 53.35 |
| 548+50 | 54850.00 | 50.00 | 8.94 | 0.00 | 0.00 | 0.00 | 16.08 | 0.00 | 0.00 | 0.00 | 69.43 | 0.00 | 0.00 | 0.00 | 69.43 |
| 549+00 | 54900.00 | 50.00 | 9.10 | 0.00 | 0.00 | 0.00 | 16.70 | 0.00 | 0.00 | 0.00 | 86.14 | 0.00 | 0.00 | 0.00 | 86.14 |
| 549+50 | 54950.00 | 50.00 | 9.67 | 0.00 | 0.00 | 0.00 | 17.38 | 0.00 | 0.00 | 0.00 | 103.52 | 0.00 | 0.00 | 0.00 | 103.52 |
| 550+00 | 55000.00 | 50.00 | 9.41 | 0.00 | 0.00 | 0.00 | 17.67 | 0.00 | 0.00 | 0.00 | 121.18 | 0.00 | 0.00 | 0.00 | 121.18 |
| 550+50 | 55050.00 | 50.00 | 8.03 | 0.00 | 0.00 | 0.00 | 16.15 | 0.00 | 0.00 | 0.00 | 137.33 | 0.00 | 0.00 | 0.00 | 137.33 |
| 550+86 BK | 55085.68 | 35.68 | 7.29 | 0.00 | 0.00 | 0.00 | 10.12 | 0.00 | 0.00 | 0.00 | 147.45 | 0.00 | 0.00 | 0.00 | 147.45 |
| | | Column totals | | | | | 147.45 | 0.00 | 0.00 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4811
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:38 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew186 PLOT SCALE : 1:1

**Division 7 RAMP CS**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 569+00 AH | 56900.00 | 0.00 | 11.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 569+50 | 56950.00 | 50.00 | 8.68 | 0.00 | 0.01 | 0.00 | 18.77 | 0.00 | 0.01 | 0.00 | 18.77 | 0.01 | 0.00 | 0.00 | 18.76 |
| 570+00 | 57000.00 | 50.00 | 5.73 | 0.00 | 0.01 | 0.00 | 13.34 | 0.00 | 0.02 | 0.00 | 32.11 | 0.03 | 0.00 | 0.00 | 32.08 |
| 570+50 | 57050.00 | 50.00 | 2.10 | 0.00 | 0.31 | 0.00 | 7.25 | 0.00 | 0.30 | 0.00 | 39.36 | 0.36 | 0.00 | 0.00 | 39.00 |
| 571+00 | 57100.00 | 50.00 | 0.48 | 0.00 | 1.73 | 0.00 | 2.39 | 0.00 | 1.89 | 0.00 | 41.75 | 2.43 | 0.00 | 0.00 | 39.32 |
| 571+50 | 57150.00 | 50.00 | 0.00 | 0.00 | 4.65 | 0.00 | 0.44 | 0.00 | 5.91 | 0.00 | 42.19 | 8.93 | 0.00 | 0.00 | 33.26 |
| 572+00 | 57200.00 | 50.00 | 0.00 | 0.00 | 7.93 | 0.00 | 0.00 | 0.00 | 11.65 | 0.00 | 42.19 | 21.75 | 0.00 | 0.00 | 20.45 |
| 572+50 | 57250.00 | 50.00 | 0.00 | 0.00 | 10.17 | 0.00 | 0.00 | 0.00 | 16.76 | 0.00 | 42.19 | 40.18 | 0.00 | 0.00 | 2.01 |
| 573+00 | 57300.00 | 50.00 | 0.00 | 0.00 | 12.10 | 0.00 | 0.00 | 0.00 | 20.62 | 0.00 | 42.19 | 62.86 | 0.00 | 0.00 | -20.67 |
| 573+22 BK | 57322.00 | 22.00 | 0.00 | 0.00 | 13.00 | 0.00 | 0.00 | 0.00 | 10.23 | 0.00 | 42.19 | 74.11 | 0.00 | 0.00 | -31.92 |
| | | | | | | Column totals | 42.19 | 0.00 | 67.37 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4812
September 14, 2015

Addendum No. 03
ID 1060-33-81
Revised Sheet 4813
September 14, 2015

**Division 7 RAMP EN**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 516+05 AH | 51605.36 | 0.00 | 82.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 516+50 | 51650.00 | 44.64 | 34.01 | 0.00 | 0.00 | 0.00 | 96.29 | 0.00 | 0.00 | 0.00 | 96.29 | 0.00 | 0.00 | 0.00 | 96.29 |
| 517+00 | 51700.00 | 50.00 | 34.00 | 0.00 | 0.00 | 0.00 | 62.97 | 0.00 | 0.00 | 0.00 | 159.26 | 0.00 | 0.00 | 0.00 | 159.26 |
| 517+02 | 51702.00 | 2.00 | 29.06 | 0.00 | 0.00 | 0.00 | 2.34 | 0.00 | 0.00 | 0.00 | 161.60 | 0.00 | 0.00 | 0.00 | 161.60 |
| 517+02 | 51702.00 | 0.00 | 66.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 161.60 | 0.00 | 0.00 | 0.00 | 161.60 |
| 517+50 | 51750.00 | 48.00 | 68.30 | 0.00 | 0.00 | 0.00 | 119.61 | 0.00 | 0.00 | 0.00 | 281.21 | 0.00 | 0.00 | 0.00 | 281.21 |
| 518+00 | 51800.00 | 50.00 | 66.76 | 0.00 | 0.00 | 0.00 | 125.06 | 0.00 | 0.00 | 0.00 | 406.26 | 0.00 | 0.00 | 0.00 | 406.26 |
| 518+29 | 51828.92 | 28.92 | 65.55 | 0.00 | 0.00 | 0.00 | 70.86 | 0.00 | 0.00 | 0.00 | 477.12 | 0.00 | 0.00 | 0.00 | 477.12 |
| 518+29 | 51828.92 | 0.00 | 104.52 | 0.00 | 0.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 477.12 | 0.00 | 0.00 | 0.00 | 477.12 |
| 518+50 | 51850.00 | 21.08 | 104.88 | 0.00 | 0.00 | 0.00 | 81.74 | 0.00 | 0.18 | 0.00 | 558.87 | 0.20 | 0.00 | 0.00 | 558.67 |
| 519+00 | 51900.00 | 50.00 | 93.31 | 0.00 | 0.92 | 0.00 | 183.51 | 0.00 | 0.85 | 0.00 | 742.37 | 1.13 | 0.00 | 0.00 | 741.24 |
| 519+22 | 51921.59 | 21.59 | 76.73 | 0.00 | 2.43 | 0.00 | 67.98 | 0.00 | 1.34 | 0.00 | 810.36 | 2.61 | 0.00 | 0.00 | 807.75 |
| 519+22 | 51921.59 | 0.00 | 54.52 | 0.00 | 2.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 810.36 | 2.61 | 0.00 | 0.00 | 807.75 |
| 519+50 | 51950.00 | 28.41 | 26.66 | 0.00 | 14.44 | 0.00 | 42.71 | 0.00 | 8.90 | 0.00 | 853.07 | 12.39 | 0.00 | 0.00 | 840.67 |
| 520+00 | 52000.00 | 50.00 | 0.16 | 0.00 | 25.73 | 0.00 | 24.83 | 0.00 | 37.19 | 0.00 | 877.90 | 53.31 | 0.00 | 0.00 | 824.59 |
| 520+50 | 52050.00 | 50.00 | 0.46 | 0.00 | 60.28 | 0.00 | 0.57 | 0.00 | 79.64 | 0.00 | 878.48 | 140.91 | 0.00 | 0.00 | 737.57 |
| 521+00 | 52100.00 | 50.00 | 0.00 | 0.00 | 93.76 | 0.00 | 0.43 | 0.00 | 142.63 | 0.00 | 878.90 | 297.80 | 0.00 | 0.00 | 581.10 |
| 521+50 | 52150.00 | 50.00 | 0.00 | 0.00 | 142.47 | 0.00 | 0.00 | 0.00 | 218.73 | 0.00 | 878.90 | 538.41 | 0.00 | 0.00 | 340.49 |
| 522+00 | 52200.00 | 50.00 | 0.00 | 0.00 | 189.51 | 0.00 | 0.00 | 0.00 | 307.39 | 0.00 | 878.90 | 876.54 | 0.00 | 0.00 | 2.37 |
| 522+50 | 52250.00 | 50.00 | 0.00 | 0.00 | 207.54 | 0.00 | 0.00 | 0.00 | 367.64 | 0.00 | 878.90 | 1280.94 | 0.00 | 0.00 | -402.04 |
| 523+00 | 52300.00 | 50.00 | 0.01 | 0.00 | 181.20 | 0.00 | 0.01 | 0.00 | 359.94 | 0.00 | 878.91 | 1676.88 | 0.00 | 0.00 | -797.97 |
| 523+50 | 52350.00 | 50.00 | 6.18 | 0.00 | 196.88 | 0.00 | 5.73 | 0.00 | 350.07 | 0.00 | 884.64 | 2061.96 | 0.00 | 0.00 | -1177.32 |
| 523+85 | 52384.67 | 34.67 | 0.02 | 0.00 | 121.51 | 0.00 | 3.98 | 0.00 | 204.42 | 0.00 | 888.62 | 2286.82 | 0.00 | 0.00 | -1398.20 |
| 523+85 | 52384.67 | 0.00 | 23.36 | 0.00 | 618.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 888.62 | 2286.82 | 0.00 | 0.00 | -1398.20 |
| 524+00 | 52400.00 | 15.33 | 1.20 | 0.00 | 687.49 | 0.00 | 6.97 | 0.00 | 370.65 | 0.00 | 895.60 | 2694.53 | 0.00 | 0.00 | -1798.94 |
| 524+50 | 52450.00 | 50.00 | 0.00 | 0.00 | 1028.94 | 0.00 | 1.11 | 0.00 | 1589.29 | 0.00 | 896.71 | 4442.75 | 0.00 | 0.00 | -3546.04 |
| 525+00 | 52500.00 | 50.00 | 0.00 | 0.00 | 1277.79 | 0.00 | 0.00 | 0.00 | 2135.86 | 0.00 | 896.71 | 6792.19 | 0.00 | 0.00 | -5895.49 |
| 525+00 | 52500.00 | 0.00 | 0.00 | 0.00 | 1270.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 896.71 | 6792.19 | 0.00 | 0.00 | -5895.49 |
| 525+24 BK | 52524.00 | 24.00 | 0.00 | 0.00 | 1562.92 | 0.00 | 0.00 | 0.00 | 1259.19 | 0.00 | 896.71 | 8177.30 | 0.00 | 0.00 | -7280.59 |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 7 RAMP EN**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 527+00 AH | 52700.00 | 0.00 | 0.00 | 0.00 | 1751.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 527+50 | 52750.00 | 50.00 | 14.15 | 0.00 | 1610.04 | 0.00 | 13.10 | 0.00 | 3112.66 | 0.00 | 13.10 | 3423.92 | 0.00 | 0.00 | -3410.82 |
| 528+00 | 52800.00 | 50.00 | 29.95 | 0.00 | 1484.65 | 0.00 | 40.83 | 0.00 | 2865.45 | 0.00 | 53.94 | 6575.92 | 0.00 | 0.00 | -6521.99 |
| 528+50 | 52850.00 | 50.00 | 0.50 | 0.00 | 1325.25 | 0.00 | 28.19 | 0.00 | 2601.76 | 0.00 | 82.13 | 9437.86 | 0.00 | 0.00 | -9355.73 |
| 529+00 | 52900.00 | 50.00 | 0.14 | 0.00 | 432.76 | 0.00 | 0.59 | 0.00 | 1627.79 | 0.00 | 82.72 | 11228.42 | 0.00 | 0.00 | -11145.70 |
| 529+50 | 52950.00 | 50.00 | 1.73 | 0.00 | 537.72 | 0.00 | 1.73 | 0.00 | 898.59 | 0.00 | 84.45 | 12216.88 | 0.00 | 0.00 | -12132.42 |
| 530+00 | 53000.00 | 50.00 | 3.80 | 0.00 | 490.33 | 0.00 | 5.12 | 0.00 | 951.90 | 0.00 | 89.57 | 13263.96 | 0.00 | 0.00 | -13174.39 |
| 530+50 | 53050.00 | 50.00 | 0.06 | 0.00 | 249.46 | 0.00 | 3.57 | 0.00 | 684.99 | 0.00 | 93.15 | 14017.45 | 0.00 | 0.00 | -13924.30 |
| 531+00 | 53100.00 | 50.00 | 64.36 | 0.00 | 263.04 | 0.00 | 59.65 | 0.00 | 474.54 | 0.00 | 152.80 | 14539.44 | 0.00 | 0.00 | -14386.65 |
| 531+50 BK | 53150.00 | 50.00 | 66.64 | 0.00 | 303.91 | 0.00 | 121.30 | 0.00 | 524.95 | 0.00 | 274.09 | 15116.89 | 0.00 | 0.00 | -14842.80 |
| 541+00 AH | 54100.00 | 0.00 | 214.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 541+50 | 54150.00 | 50.00 | 203.61 | 0.00 | 0.00 | 0.00 | 387.11 | 0.00 | 0.00 | 0.00 | 387.11 | 0.00 | 0.00 | 0.00 | 387.11 |
| 542+00 | 54200.00 | 50.00 | 187.95 | 0.00 | 0.00 | 0.00 | 362.56 | 0.00 | 0.00 | 0.00 | 749.67 | 0.00 | 0.00 | 0.00 | 749.67 |
| 542+00 | 54200.00 | 0.00 | 423.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 749.67 | 0.00 | 0.00 | 0.00 | 749.67 |
| 542+50 | 54250.00 | 50.00 | 368.47 | 0.00 | 16.43 | 0.00 | 733.44 | 0.00 | 15.21 | 0.00 | 1483.10 | 16.73 | 0.00 | 0.00 | 1466.37 |
| 542+66 BK | 54265.62 | 15.62 | 361.75 | 0.00 | 56.32 | 0.00 | 211.22 | 0.00 | 21.04 | 0.00 | 1694.32 | 39.88 | 0.00 | 0.00 | 1654.44 |
| | | | | | | Column totals | 2865.12 | 0.00 | 21212.80 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4814
September 14, 2015

**Division 7 RAMP BB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Salvaged/ Unusable Pavement Material Note 2 | Fill Note 3 | EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Expanded Fill 1.1 | Expanded EBS Backfill 1.30 Note 4 | Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 806+95 AH | 80695.48 | 0.00 | 915.92 | 0.00 | 37.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 807+00 | 80700.00 | 4.52 | 768.42 | 0.00 | 118.25 | 0.00 | 140.99 | 0.00 | 13.02 | 0.00 | 140.99 | 14.33 | 0.00 | 0.00 | 126.66 |
| 807+50 | 80750.00 | 50.00 | 1745.37 | 0.00 | 0.00 | 0.00 | 2327.58 | 0.00 | 109.49 | 0.00 | 2468.57 | 134.77 | 0.00 | 0.00 | 2333.80 |
| 808+00 | 80800.00 | 50.00 | 1853.13 | 0.00 | 0.00 | 0.00 | 3331.94 | 0.00 | 0.00 | 0.00 | 5800.51 | 134.77 | 0.00 | 0.00 | 5665.75 |
| 808+50 | 80850.00 | 50.00 | 1554.14 | 0.00 | 0.00 | 0.00 | 3154.88 | 0.00 | 0.00 | 0.00 | 8955.39 | 134.77 | 0.00 | 0.00 | 8820.63 |
| 809+00 | 80900.00 | 50.00 | 1222.80 | 0.00 | 10.12 | 0.00 | 2571.24 | 0.00 | 9.37 | 0.00 | 11526.63 | 145.07 | 0.00 | 0.00 | 11381.56 |
| 809+50 | 80950.00 | 50.00 | 1259.67 | 0.00 | 1.06 | 0.00 | 2298.58 | 0.00 | 10.35 | 0.00 | 13825.22 | 156.46 | 0.00 | 0.00 | 13668.76 |
| 810+00 | 81000.00 | 50.00 | 1211.63 | 0.00 | 2.93 | 0.00 | 2288.24 | 0.00 | 3.69 | 0.00 | 16113.46 | 160.52 | 0.00 | 0.00 | 15952.93 |
| 810+50 | 81050.00 | 50.00 | 1224.59 | 0.00 | 1.19 | 0.00 | 2255.76 | 0.00 | 3.81 | 0.00 | 18369.22 | 164.72 | 0.00 | 0.00 | 18204.50 |
| 811+00 | 81100.00 | 50.00 | 1259.22 | 0.00 | 0.08 | 0.00 | 2299.82 | 0.00 | 1.18 | 0.00 | 20669.04 | 166.01 | 0.00 | 0.00 | 20503.03 |
| 811+50 | 81150.00 | 50.00 | 1257.14 | 0.00 | 0.00 | 0.00 | 2329.96 | 0.00 | 0.07 | 0.00 | 22999.00 | 166.10 | 0.00 | 0.00 | 22832.91 |
| 812+00 | 81200.00 | 50.00 | 1158.44 | 0.00 | 0.00 | 0.00 | 2236.65 | 0.00 | 0.00 | 0.00 | 25235.65 | 166.10 | 0.00 | 0.00 | 25069.56 |
| 812+50 | 81250.00 | 50.00 | 987.07 | 0.00 | 0.00 | 0.00 | 1986.58 | 0.00 | 0.00 | 0.00 | 27222.24 | 166.10 | 0.00 | 0.00 | 27056.14 |
| 813+00 | 81300.00 | 50.00 | 819.68 | 0.00 | 0.86 | 0.00 | 1672.92 | 0.00 | 0.80 | 0.00 | 28895.15 | 166.97 | 0.00 | 0.00 | 28728.18 |
| 813+50 | 81350.00 | 50.00 | 657.11 | 0.00 | 2.31 | 0.00 | 1367.40 | 0.00 | 2.94 | 0.00 | 30262.55 | 170.20 | 0.00 | 0.00 | 30092.35 |
| 814+00 | 81400.00 | 50.00 | 494.57 | 0.00 | 6.25 | 0.00 | 1066.37 | 0.00 | 7.93 | 0.00 | 31328.92 | 178.92 | 0.00 | 0.00 | 31150.00 |
| 814+50 | 81450.00 | 50.00 | 351.71 | 0.00 | 25.39 | 0.00 | 783.59 | 0.00 | 29.30 | 0.00 | 32112.51 | 211.14 | 0.00 | 0.00 | 31901.37 |
| 815+00 | 81500.00 | 50.00 | 214.94 | 0.00 | 57.90 | 0.00 | 524.68 | 0.00 | 77.12 | 0.00 | 32637.19 | 295.98 | 0.00 | 0.00 | 32341.21 |
| 815+50 | 81550.00 | 50.00 | 120.65 | 0.00 | 65.81 | 0.00 | 310.73 | 0.00 | 114.55 | 0.00 | 32947.92 | 421.98 | 0.00 | 0.00 | 32525.94 |
| 816+00 | 81600.00 | 50.00 | 18.72 | 0.00 | 244.15 | 0.00 | 129.05 | 0.00 | 287.00 | 0.00 | 33076.97 | 737.68 | 0.00 | 0.00 | 32339.29 |
| 816+50 | 81650.00 | 50.00 | 14.88 | 0.00 | 198.33 | 0.00 | 31.11 | 0.00 | 409.70 | 0.00 | 33108.08 | 1188.35 | 0.00 | 0.00 | 31919.73 |
| 817+00 | 81700.00 | 50.00 | 21.87 | 0.00 | 223.87 | 0.00 | 34.03 | 0.00 | 390.93 | 0.00 | 33142.11 | 1618.37 | 0.00 | 0.00 | 31523.74 |
| 817+50 | 81750.00 | 50.00 | 76.30 | 0.00 | 264.41 | 0.00 | 90.90 | 0.00 | 452.11 | 0.00 | 33233.00 | 2115.69 | 0.00 | 0.00 | 31117.31 |
| 818+00 | 81800.00 | 50.00 | 5.03 | 0.00 | 27.76 | 0.00 | 75.31 | 0.00 | 270.53 | 0.00 | 33308.31 | 2413.27 | 0.00 | 0.00 | 30895.04 |
| 818+50 | 81850.00 | 50.00 | 6.91 | 0.00 | 20.19 | 0.00 | 11.06 | 0.00 | 44.40 | 0.00 | 33319.37 | 2462.11 | 0.00 | 0.00 | 30857.25 |
| 819+00 | 81900.00 | 50.00 | 12.98 | 0.00 | 11.40 | 0.00 | 18.42 | 0.00 | 29.25 | 0.00 | 33337.78 | 2494.29 | 0.00 | 0.00 | 30843.50 |
| 819+50 | 81950.00 | 50.00 | 16.54 | 0.00 | 13.64 | 0.00 | 27.33 | 0.00 | 23.19 | 0.00 | 33365.12 | 2519.79 | 0.00 | 0.00 | 30845.33 |
| 820+00 | 82000.00 | 50.00 | 15.87 | 0.00 | 15.45 | 0.00 | 30.01 | 0.00 | 26.94 | 0.00 | 33395.12 | 2549.42 | 0.00 | 0.00 | 30845.71 |
| 820+50 | 82050.00 | 50.00 | 15.06 | 0.00 | 16.60 | 0.00 | 28.64 | 0.00 | 29.68 | 0.00 | 33423.76 | 2582.06 | 0.00 | 0.00 | 30841.70 |
| 821+00 | 82100.00 | 50.00 | 8.85 | 0.00 | 18.51 | 0.00 | 22.14 | 0.00 | 32.51 | 0.00 | 33445.90 | 2617.82 | 0.00 | 0.00 | 30828.08 |
| 821+50 | 82150.00 | 50.00 | 13.20 | 0.00 | 19.99 | 0.00 | 20.42 | 0.00 | 35.65 | 0.00 | 33466.32 | 2657.04 | 0.00 | 0.00 | 30809.28 |
| 822+00 | 82200.00 | 50.00 | 24.06 | 0.00 | 20.35 | 0.00 | 34.50 | 0.00 | 37.35 | 0.00 | 33500.82 | 2698.12 | 0.00 | 0.00 | 30802.70 |
| 822+48 BK | 82248.26 | 48.26 | 131.86 | 0.00 | 0.14 | 0.00 | 139.35 | 0.00 | 18.31 | 0.00 | 33640.17 | 2718.27 | 0.00 | 0.00 | 30921.90 |
| | | | | | | Column totals | 33640.17 | 0.00 | 2471.15 | 0.00 | | | | | |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4815
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:38 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew190 PLOT SCALE : 1:1

**Division 7 RAMP FH**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Salvaged/ Unusable Pavement Material Note 2 | Fill Note 3 | EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Expanded Fill 1.1 | Expanded EBS Backfill 1.30 Note 4 | Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 800+73 AH | 80072.72 | 0.00 | 133.03 | 0.00 | 74.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 801+00 | 80100.00 | 27.28 | 120.69 | 0.00 | 63.55 | 0.00 | 128.18 | 0.00 | 69.88 | 0.00 | 128.18 | 76.86 | 0.00 | 0.00 | 51.31 |
| 801+13 | 80113.22 | 13.22 | 104.51 | 0.00 | 0.00 | 0.00 | 55.13 | 0.00 | 15.56 | 0.00 | 183.31 | 93.98 | 0.00 | 0.00 | 89.33 |
| 801+13 | 80113.22 | 0.00 | 125.31 | 0.00 | 825.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 183.31 | 93.98 | 0.00 | 0.00 | 89.33 |
| 801+50 | 80150.00 | 36.78 | 293.46 | 0.00 | 177.25 | 0.00 | 285.23 | 0.00 | 682.76 | 0.00 | 468.54 | 845.01 | 0.00 | 0.00 | -376.48 |
| 802+00 | 80200.00 | 50.00 | 638.15 | 0.00 | 0.91 | 0.00 | 862.60 | 0.00 | 164.96 | 0.00 | 1331.14 | 1026.47 | 0.00 | 0.00 | 304.67 |
| 802+50 | 80250.00 | 50.00 | 527.64 | 0.00 | 11.05 | 0.00 | 1079.44 | 0.00 | 11.07 | 0.00 | 2410.57 | 1038.65 | 0.00 | 0.00 | 1371.92 |
| 802+72 | 80271.93 | 21.93 | 113.94 | 0.00 | 17.42 | 0.00 | 260.55 | 0.00 | 11.56 | 0.00 | 2671.13 | 1051.37 | 0.00 | 0.00 | 1619.75 |
| 802+72 | 80271.93 | 0.00 | 96.04 | 0.00 | 10.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2671.13 | 1051.37 | 0.00 | 0.00 | 1619.75 |
| 803+00 | 80300.00 | 28.07 | 180.72 | 0.00 | 2.06 | 0.00 | 143.86 | 0.00 | 6.49 | 0.00 | 2554.44 | 1045.80 | 0.00 | 0.00 | 1508.64 |
| 803+50 | 80350.00 | 50.00 | 111.70 | 0.00 | 0.00 | 0.00 | 270.76 | 0.00 | 1.91 | 0.00 | 2825.20 | 1047.89 | 0.00 | 0.00 | 1777.30 |
| 804+00 BK | 80400.00 | 50.00 | 105.92 | 0.00 | 0.08 | 0.00 | 201.50 | 0.00 | 0.07 | 0.00 | 3026.70 | 1047.98 | 0.00 | 0.00 | 1978.72 |
| | | Column totals | | | | | 3287.25 | 0.00 | 964.27 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4816
September 14, 2015


9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:38 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew191 PLOT SCALE : 1:1

**Division 7 CURTIS ROAD**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Salvaged/ Unusable Pavement Material Note 2 | Fill Note 3 | EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Expanded Fill 1.1 | Expanded EBS Backfill 1.30 Note 4 | Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11+33 AH | 1133.40 | 0.00 | 112.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11+50 | 1150.00 | 16.60 | 132.79 | 0.00 | 0.00 | 0.00 | 75.43 | 0.00 | 0.00 | 0.00 | 75.43 | 0.00 | 0.00 | 0.00 | 75.43 |
| 12+00 | 1200.00 | 50.00 | 122.72 | 0.00 | 0.00 | 0.00 | 236.58 | 0.00 | 0.00 | 0.00 | 312.01 | 0.00 | 0.00 | 0.00 | 312.01 |
| 12+50 | 1250.00 | 50.00 | 118.04 | 0.00 | 0.00 | 0.00 | 222.93 | 0.00 | 0.00 | 0.00 | 534.94 | 0.00 | 0.00 | 0.00 | 534.94 |
| 13+00 | 1300.00 | 50.00 | 130.07 | 0.00 | 0.00 | 0.00 | 229.73 | 0.00 | 0.00 | 0.00 | 764.67 | 0.00 | 0.00 | 0.00 | 764.67 |
| 13+50 | 1350.00 | 50.00 | 137.18 | 0.00 | 0.00 | 0.00 | 247.45 | 0.00 | 0.00 | 0.00 | 1012.12 | 0.00 | 0.00 | 0.00 | 1012.12 |
| 13+51 | 1350.78 | 0.78 | 137.48 | 0.00 | 0.00 | 0.00 | 3.97 | 0.00 | 0.00 | 0.00 | 1016.09 | 0.00 | 0.00 | 0.00 | 1016.09 |
| 13+51 | 1350.80 | 0.00 | 55.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1016.09 | 0.00 | 0.00 | 0.00 | 1016.09 |
| 13+63 BK | 1362.92 | 12.12 | 56.48 | 0.00 | 0.00 | 0.00 | 25.04 | 0.00 | 0.00 | 0.00 | 1041.13 | 0.00 | 0.00 | 0.00 | 1041.13 |
| 14+21 AH | 1421.00 | 0.00 | 121.83 | 0.00 | 0.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1041.13 | 0.00 | 0.00 | 0.00 | 1041.13 |
| 14+50 | 1450.00 | 29.00 | 137.74 | 0.00 | 0.00 | 0.00 | 139.40 | 0.00 | 0.23 | 0.00 | 1180.53 | 0.25 | 0.00 | 0.00 | 1180.28 |
| 14+98 BK | 1498.22 | 48.22 | 100.51 | 0.00 | 0.13 | 0.00 | 212.75 | 0.00 | 0.12 | 0.00 | 1393.28 | 0.38 | 0.00 | 0.00 | 1392.90 |
| | | Column totals | | | | | 1393.28 | 0.00 | 0.35 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4817
September 14, 2015



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:38 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew192 PLOT SCALE : 1:1

**Division 7 NSP**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11+00 AH | 1100.00 | 0.00 | 0.59 | 0.00 | 8.92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11+50 | 1150.00 | 50.00 | 3.96 | 0.00 | 1.66 | 0.00 | 4.21 | 0.00 | 9.80 | 0.00 | 4.21 | 10.78 | 0.00 | 0.00 | -6.56 |
| 12+00 | 1200.00 | 50.00 | 30.68 | 0.00 | 0.05 | 0.00 | 32.07 | 0.00 | 1.58 | 0.00 | 36.29 | 12.52 | 0.00 | 0.00 | 23.77 |
| 12+50 | 1250.00 | 50.00 | 34.62 | 0.00 | 0.01 | 0.00 | 60.46 | 0.00 | 0.06 | 0.00 | 96.75 | 12.58 | 0.00 | 0.00 | 84.17 |
| 13+00 | 1300.00 | 50.00 | 34.06 | 0.00 | 0.03 | 0.00 | 63.59 | 0.00 | 0.04 | 0.00 | 160.34 | 12.62 | 0.00 | 0.00 | 147.72 |
| 13+50 | 1350.00 | 50.00 | 24.59 | 0.00 | 23.32 | 0.00 | 54.31 | 0.00 | 21.62 | 0.00 | 214.65 | 36.40 | 0.00 | 0.00 | 178.25 |
| 14+00 | 1400.00 | 50.00 | 33.23 | 0.00 | 0.02 | 0.00 | 53.54 | 0.00 | 21.61 | 0.00 | 268.19 | 60.17 | 0.00 | 0.00 | 208.01 |
| 14+50 | 1450.00 | 50.00 | 48.64 | 0.00 | 0.00 | 0.00 | 75.81 | 0.00 | 0.02 | 0.00 | 343.99 | 60.19 | 0.00 | 0.00 | 283.80 |
| 15+00 | 1500.00 | 50.00 | 62.35 | 0.00 | 0.00 | 0.00 | 102.77 | 0.00 | 0.00 | 0.00 | 446.76 | 60.19 | 0.00 | 0.00 | 386.56 |
| 15+50 | 1550.00 | 50.00 | 69.21 | 0.00 | 1.42 | 0.00 | 121.81 | 0.00 | 1.31 | 0.00 | 568.57 | 61.64 | 0.00 | 0.00 | 506.93 |
| 16+00 | 1600.00 | 50.00 | 111.60 | 0.00 | 0.45 | 0.00 | 167.42 | 0.00 | 1.73 | 0.00 | 735.99 | 63.55 | 0.00 | 0.00 | 672.45 |
| 16+50 | 1650.00 | 50.00 | 58.47 | 0.00 | 0.00 | 0.00 | 157.47 | 0.00 | 0.42 | 0.00 | 893.46 | 64.00 | 0.00 | 0.00 | 829.46 |
| 17+00 | 1700.00 | 50.00 | 71.64 | 0.00 | 0.00 | 0.00 | 120.47 | 0.00 | 0.00 | 0.00 | 1013.94 | 64.00 | 0.00 | 0.00 | 949.93 |
| 17+50 | 1750.00 | 50.00 | 82.42 | 0.00 | 0.00 | 0.00 | 142.65 | 0.00 | 0.00 | 0.00 | 1156.58 | 64.00 | 0.00 | 0.00 | 1092.58 |
| 18+00 | 1800.00 | 50.00 | 89.04 | 0.00 | 0.00 | 0.00 | 158.76 | 0.00 | 0.00 | 0.00 | 1315.34 | 64.00 | 0.00 | 0.00 | 1251.34 |
| 18+50 | 1850.00 | 50.00 | 71.41 | 0.00 | 0.38 | 0.00 | 148.56 | 0.00 | 0.35 | 0.00 | 1463.91 | 64.39 | 0.00 | 0.00 | 1399.52 |
| 18+79 BK | 1879.03 | 29.03 | 69.74 | 0.00 | 0.00 | 0.00 | 75.88 | 0.00 | 0.20 | 0.00 | 1539.79 | 64.62 | 0.00 | 0.00 | 1475.17 |
| | | | | | Column totals | | 1539.79 | 0.00 | 58.74 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4818
September 14, 2015


9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:38 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew193 PLOT SCALE : 1:1

**Division 7 NW INFIELD (NW)**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 484+16 AH | 48416.48 | 0.00 | 36.71 | 0.00 | 100.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 484+50 | 48450.00 | 33.52 | 10.28 | 0.00 | 266.00 | 0.00 | 29.17 | 0.00 | 227.51 | 0.00 | 29.17 | 250.27 | 0.00 | 0.00 | -221.10 |
| 485+00 | 48500.00 | 50.00 | 241.42 | 0.00 | 694.31 | 0.00 | 233.06 | 0.00 | 889.18 | 0.00 | 262.22 | 1228.36 | 0.00 | 0.00 | -966.13 |
| 485+50 | 48550.00 | 50.00 | 344.50 | 0.00 | 970.52 | 0.00 | 542.52 | 0.00 | 1541.51 | 0.00 | 804.74 | 2924.02 | 0.00 | 0.00 | -2119.28 |
| 486+00 | 48600.00 | 50.00 | 382.42 | 0.00 | 1608.00 | 0.00 | 673.07 | 0.00 | 2387.52 | 0.00 | 1477.82 | 5550.29 | 0.00 | 0.00 | -4072.47 |
| 486+50 | 48650.00 | 50.00 | 112.78 | 0.00 | 2309.25 | 0.00 | 458.52 | 0.00 | 3627.08 | 0.00 | 1936.34 | 9540.08 | 0.00 | 0.00 | -7603.75 |
| 487+00 BK | 48700.00 | 50.00 | 93.16 | 0.00 | 2482.57 | 0.00 | 190.69 | 0.00 | 4436.87 | 0.00 | 2127.02 | 14420.64 | 0.00 | 0.00 | -12293.62 |
| | | | | | Column totals | | 2127.02 | 0.00 | 13109.67 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4819
September 14, 2015

**Division 8 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 255+25 AH | 25525.01 | 0.00 | 52.50 | 0.00 | 1.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 255+50 | 25550.00 | 24.99 | 5.67 | 0.00 | 0.17 | 0.00 | 26.92 | 0.00 | 0.58 | 0.00 | 26.92 | 0.64 | 0.00 | 0.00 | 26.28 |
| 256+00 | 25600.00 | 50.00 | 6.77 | 0.00 | 6.17 | 0.00 | 11.52 | 0.00 | 5.87 | 0.00 | 38.44 | 7.09 | 0.00 | 0.00 | 31.34 |
| 256+50 | 25650.00 | 50.00 | 4.19 | 0.00 | 62.63 | 0.00 | 10.15 | 0.00 | 63.70 | 0.00 | 48.59 | 77.17 | 0.00 | 0.00 | -28.58 |
| 257+00 | 25700.00 | 50.00 | 4.43 | 0.00 | 87.09 | 0.00 | 7.98 | 0.00 | 138.63 | 0.00 | 56.57 | 229.66 | 0.00 | 0.00 | -173.09 |
| 257+50 | 25750.00 | 50.00 | 4.65 | 0.00 | 103.21 | 0.00 | 8.41 | 0.00 | 176.20 | 0.00 | 64.98 | 423.48 | 0.00 | 0.00 | -358.51 |
| 258+00 | 25800.00 | 50.00 | 4.81 | 0.00 | 113.92 | 0.00 | 8.76 | 0.00 | 201.05 | 0.00 | 73.73 | 644.64 | 0.00 | 0.00 | -570.90 |
| 258+50 | 25850.00 | 50.00 | 6.20 | 0.00 | 122.90 | 0.00 | 10.19 | 0.00 | 219.28 | 0.00 | 83.93 | 885.84 | 0.00 | 0.00 | -801.91 |
| 259+00 | 25900.00 | 50.00 | 12.71 | 0.00 | 122.51 | 0.00 | 17.51 | 0.00 | 227.23 | 0.00 | 101.44 | 1135.80 | 0.00 | 0.00 | -1034.36 |
| 259+50 | 25950.00 | 50.00 | 21.89 | 0.00 | 116.20 | 0.00 | 32.04 | 0.00 | 221.03 | 0.00 | 133.48 | 1378.93 | 0.00 | 0.00 | -1245.45 |
| 260+00 | 26000.00 | 50.00 | 31.18 | 0.00 | 92.19 | 0.00 | 49.14 | 0.00 | 192.95 | 0.00 | 182.61 | 1591.18 | 0.00 | 0.00 | -1408.56 |
| 260+50 | 26050.00 | 50.00 | 33.62 | 0.00 | 47.10 | 0.00 | 60.00 | 0.00 | 128.97 | 0.00 | 242.61 | 1733.04 | 0.00 | 0.00 | -1490.43 |
| 261+00 | 26100.00 | 50.00 | 14.26 | 0.00 | 20.30 | 0.00 | 44.33 | 0.00 | 62.41 | 0.00 | 286.95 | 1801.69 | 0.00 | 0.00 | -1514.75 |
| 261+50 | 26150.00 | 50.00 | 2.04 | 0.00 | 14.45 | 0.00 | 15.09 | 0.00 | 32.18 | 0.00 | 302.04 | 1837.09 | 0.00 | 0.00 | -1535.05 |
| 262+00 | 26200.00 | 50.00 | 0.00 | 0.00 | 20.09 | 0.00 | 1.89 | 0.00 | 31.98 | 0.00 | 303.93 | 1872.27 | 0.00 | 0.00 | -1568.34 |
| 262+50 | 26250.00 | 50.00 | 0.00 | 0.00 | 22.71 | 0.00 | 0.00 | 0.00 | 39.63 | 0.00 | 303.93 | 1915.86 | 0.00 | 0.00 | -1611.93 |
| 263+00 | 26300.00 | 50.00 | 0.00 | 0.00 | 30.38 | 0.00 | 0.00 | 0.00 | 49.16 | 0.00 | 303.93 | 1969.93 | 0.00 | 0.00 | -1666.00 |
| 263+50 | 26350.00 | 50.00 | 0.00 | 0.00 | 34.58 | 0.00 | 0.00 | 0.00 | 60.15 | 0.00 | 303.93 | 2036.09 | 0.00 | 0.00 | -1732.17 |
| 264+00 | 26400.00 | 50.00 | 0.00 | 0.00 | 15.06 | 0.00 | 0.00 | 0.00 | 45.96 | 0.00 | 303.93 | 2086.65 | 0.00 | 0.00 | -1782.72 |
| 264+50 | 26450.00 | 50.00 | 0.00 | 0.00 | 5.04 | 0.00 | 0.00 | 0.00 | 18.61 | 0.00 | 303.93 | 2107.13 | 0.00 | 0.00 | -1803.20 |
| 265+00 | 26500.00 | 50.00 | 0.00 | 0.00 | 0.44 | 0.00 | 0.00 | 0.00 | 5.07 | 0.00 | 303.93 | 2112.71 | 0.00 | 0.00 | -1808.78 |
| 265+06 BK | 26506.00 | 6.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 303.93 | 2112.76 | 0.00 | 0.00 | -1808.83 |
| | | | | | | Column totals | 303.93 | 0.00 | 1920.69 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4820
September 14, 2015

9

9

PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4820 | E

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:38 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew195 PLOT SCALE : 1:1

Addendum No. 03
ID 1060-33-81
Revised Sheet 4821
September 14, 2015

**Division 8 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 287+46 AH | 28746.21 | 0.00 | 29.37 | 0.00 | 4.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 287+50 | 28750.00 | 3.79 | 25.38 | 0.00 | 4.45 | 0.00 | 3.84 | 0.00 | 0.62 | 0.00 | 3.84 | 0.68 | 0.00 | 0.00 | 3.16 |
| 288+00 | 28800.00 | 50.00 | 13.36 | 0.00 | 6.29 | 0.00 | 35.87 | 0.00 | 9.94 | 0.00 | 39.71 | 11.62 | 0.00 | 0.00 | 28.09 |
| 288+27 | 28827.00 | 27.00 | 12.00 | 0.00 | 0.71 | 0.00 | 12.68 | 0.00 | 3.50 | 0.00 | 52.39 | 15.47 | 0.00 | 0.00 | 36.92 |
| 288+27 | 28827.00 | 0.00 | 52.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 52.39 | 15.47 | 0.00 | 0.00 | 36.92 |
| 288+50 | 28850.00 | 23.00 | 52.01 | 0.00 | 0.00 | 0.00 | 44.31 | 0.00 | 0.00 | 0.00 | 96.71 | 15.47 | 0.00 | 0.00 | 81.23 |
| 289+00 | 28900.00 | 50.00 | 52.65 | 0.00 | 0.00 | 0.00 | 96.91 | 0.00 | 0.00 | 0.00 | 193.61 | 15.47 | 0.00 | 0.00 | 178.14 |
| 289+50 | 28950.00 | 50.00 | 54.58 | 0.00 | 0.00 | 0.00 | 99.29 | 0.00 | 0.00 | 0.00 | 292.90 | 15.47 | 0.00 | 0.00 | 277.43 |
| 289+94 | 28994.00 | 44.00 | 0.00 | 0.00 | 1052.71 | 0.00 | 44.47 | 0.00 | 857.76 | 0.00 | 337.37 | 959.01 | 0.00 | 0.00 | -621.64 |
| 289+94 | 28994.00 | 0.00 | 0.00 | 0.00 | 1749.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 337.37 | 959.01 | 0.00 | 0.00 | -621.64 |
| 290+00 | 29000.00 | 6.00 | 0.00 | 0.00 | 1753.41 | 0.00 | 0.00 | 0.00 | 389.20 | 0.00 | 337.37 | 1387.14 | 0.00 | 0.00 | -1049.76 |
| 290+50 | 29050.00 | 50.00 | 0.00 | 0.00 | 1796.98 | 0.00 | 0.00 | 0.00 | 3287.40 | 0.00 | 337.37 | 5003.27 | 0.00 | 0.00 | -4665.90 |
| 291+00 | 29100.00 | 50.00 | 101.65 | 0.00 | 134.18 | 0.00 | 94.12 | 0.00 | 1788.11 | 0.00 | 431.49 | 6970.20 | 0.00 | 0.00 | -6538.70 |
| 291+50 | 29150.00 | 50.00 | 127.03 | 0.00 | 14.67 | 0.00 | 211.74 | 0.00 | 137.82 | 0.00 | 643.23 | 7121.80 | 0.00 | 0.00 | -6478.57 |
| 291+93 | 29192.64 | 42.64 | 96.23 | 0.00 | 377.15 | 0.00 | 176.29 | 0.00 | 309.39 | 0.00 | 819.53 | 7462.13 | 0.00 | 0.00 | -6642.61 |
| 292+34 BK | 29234.14 | 41.50 | 0.00 | 0.00 | 0.00 | 0.00 | 73.95 | 0.00 | 289.85 | 0.00 | 893.48 | 7780.97 | 0.00 | 0.00 | -6887.48 |
| 294+68 AH | 29467.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 295+09 | 29509.02 | 41.50 | 79.96 | 0.00 | 0.00 | 0.00 | 61.45 | 0.00 | 0.00 | 0.00 | 61.45 | 0.00 | 0.00 | 0.00 | 61.45 |
| 295+50 | 29550.00 | 40.98 | 84.76 | 0.00 | 4.91 | 0.00 | 125.00 | 0.00 | 3.73 | 0.00 | 186.45 | 4.10 | 0.00 | 0.00 | 182.36 |
| 296+00 | 29600.00 | 50.00 | 125.90 | 0.00 | 29.14 | 0.00 | 195.06 | 0.00 | 31.53 | 0.00 | 381.51 | 38.78 | 0.00 | 0.00 | 342.73 |
| 296+50 | 29650.00 | 50.00 | 153.94 | 0.00 | 475.89 | 0.00 | 259.11 | 0.00 | 467.62 | 0.00 | 640.62 | 553.16 | 0.00 | 0.00 | 87.46 |
| 297+00 | 29700.00 | 50.00 | 0.00 | 0.00 | 1992.80 | 0.00 | 142.54 | 0.00 | 2285.82 | 0.00 | 783.16 | 3067.57 | 0.00 | 0.00 | -2284.41 |
| 297+50 | 29750.00 | 50.00 | 7.96 | 0.00 | 1502.44 | 0.00 | 7.37 | 0.00 | 3236.33 | 0.00 | 790.53 | 6627.53 | 0.00 | 0.00 | -5837.01 |
| 298+00 | 29800.00 | 50.00 | 80.37 | 0.00 | 13.46 | 0.00 | 81.79 | 0.00 | 1403.61 | 0.00 | 872.32 | 8171.51 | 0.00 | 0.00 | -7299.19 |
| 298+02 | 29802.00 | 2.00 | 89.88 | 0.00 | 13.90 | 0.00 | 6.31 | 0.00 | 1.01 | 0.00 | 878.62 | 8172.62 | 0.00 | 0.00 | -7294.00 |
| 298+02 | 29802.00 | 0.00 | 0.00 | 0.00 | 14.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 878.62 | 8172.62 | 0.00 | 0.00 | -7294.00 |
| 298+50 | 29850.00 | 48.00 | 35.00 | 0.00 | 0.23 | 0.00 | 31.11 | 0.00 | 13.16 | 0.00 | 909.73 | 8187.10 | 0.00 | 0.00 | -7277.37 |
| 299+00 | 29900.00 | 50.00 | 5.03 | 0.00 | 0.23 | 0.00 | 37.06 | 0.00 | 0.43 | 0.00 | 946.80 | 8187.57 | 0.00 | 0.00 | -7240.77 |
| 299+40 BK | 29940.00 | 40.00 | 0.00 | 0.00 | 0.01 | 0.00 | 3.73 | 0.00 | 0.18 | 0.00 | 950.52 | 8187.77 | 0.00 | 0.00 | -7237.24 |
| | | | | | Column totals | | 1844.01 | 0.00 | 14517.03 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

**Division 8 RAMP NE**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 561+06 AH | 56105.60 | 0.00 | 38.81 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 561+50 | 56150.00 | 44.40 | 9.50 | 0.00 | 0.15 | 0.00 | 39.72 | 0.00 | 0.24 | 0.00 | 39.72 | 0.26 | 0.00 | 0.00 | 39.46 |
| 562+00 | 56200.00 | 50.00 | 9.98 | 0.00 | 0.16 | 0.00 | 18.04 | 0.00 | 0.29 | 0.00 | 57.76 | 0.58 | 0.00 | 0.00 | 57.18 |
| 562+50 | 56250.00 | 50.00 | 11.82 | 0.00 | 0.08 | 0.00 | 20.19 | 0.00 | 0.22 | 0.00 | 77.94 | 0.82 | 0.00 | 0.00 | 77.12 |
| 563+00 | 56300.00 | 50.00 | 15.25 | 0.00 | 0.00 | 0.00 | 25.06 | 0.00 | 0.07 | 0.00 | 103.01 | 0.90 | 0.00 | 0.00 | 102.10 |
| 563+50 | 56350.00 | 50.00 | 20.53 | 0.00 | 0.00 | 0.00 | 33.13 | 0.00 | 0.00 | 0.00 | 136.14 | 0.90 | 0.00 | 0.00 | 135.23 |
| 564+00 | 56400.00 | 50.00 | 24.67 | 0.00 | 0.00 | 0.00 | 41.85 | 0.00 | 0.00 | 0.00 | 177.99 | 0.90 | 0.00 | 0.00 | 177.09 |
| 564+50 | 56450.00 | 50.00 | 26.60 | 0.00 | 0.00 | 0.00 | 47.47 | 0.00 | 0.00 | 0.00 | 225.46 | 0.90 | 0.00 | 0.00 | 224.56 |
| 564+96 | 56496.00 | 46.00 | 28.05 | 0.00 | 0.00 | 0.00 | 46.55 | 0.00 | 0.00 | 0.00 | 272.02 | 0.90 | 0.00 | 0.00 | 271.11 |
| 564+96 | 56496.00 | 0.00 | 41.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 272.02 | 0.90 | 0.00 | 0.00 | 271.11 |
| 565+00 | 56500.00 | 4.00 | 28.17 | 0.00 | 0.00 | 0.00 | 5.17 | 0.00 | 0.00 | 0.00 | 277.18 | 0.90 | 0.00 | 0.00 | 276.28 |
| 565+50 | 56550.00 | 50.00 | 43.48 | 0.00 | 0.00 | 0.00 | 66.34 | 0.00 | 0.00 | 0.00 | 343.53 | 0.90 | 0.00 | 0.00 | 342.62 |
| 566+00 | 56600.00 | 50.00 | 45.28 | 0.00 | 0.00 | 0.00 | 82.19 | 0.00 | 0.00 | 0.00 | 425.71 | 0.90 | 0.00 | 0.00 | 424.81 |
| 566+50 | 56650.00 | 50.00 | 46.99 | 0.00 | 0.00 | 0.00 | 85.44 | 0.00 | 0.00 | 0.00 | 511.15 | 0.90 | 0.00 | 0.00 | 510.24 |
| 567+00 | 56700.00 | 50.00 | 48.53 | 0.00 | 0.00 | 0.00 | 88.44 | 0.00 | 0.00 | 0.00 | 599.59 | 0.90 | 0.00 | 0.00 | 598.69 |
| 567+50 | 56750.00 | 50.00 | 49.60 | 0.00 | 0.00 | 0.00 | 90.86 | 0.00 | 0.00 | 0.00 | 690.45 | 0.90 | 0.00 | 0.00 | 689.55 |
| 568+00 | 56800.00 | 50.00 | 49.06 | 0.00 | 0.00 | 0.00 | 91.35 | 0.00 | 0.00 | 0.00 | 781.80 | 0.90 | 0.00 | 0.00 | 780.90 |
| 568+26 BK | 56825.86 | 25.86 | 18.80 | 0.00 | 0.00 | 0.00 | 32.50 | 0.00 | 0.00 | 0.00 | 814.30 | 0.90 | 0.00 | 0.00 | 813.40 |
| | | | | | Column totals | | 814.30 | 0.00 | 0.82 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4822
September 14, 2015

**Division 8 RAMP EN**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 523+58 AH | 52357.73 | 0.00 | 0.00 | 0.00 | 253.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 524+00 | 52400.00 | 42.27 | 0.00 | 0.00 | 177.61 | 0.00 | 0.00 | 0.00 | 337.39 | 0.00 | 0.00 | 371.13 | 0.00 | 0.00 | -371.13 |
| 524+50 | 52450.00 | 50.00 | 0.00 | 0.00 | 43.30 | 0.00 | 0.00 | 0.00 | 204.55 | 0.00 | 0.00 | 596.13 | 0.00 | 0.00 | -596.13 |
| 525+00 BK | 52500.00 | 50.00 | 0.00 | 0.00 | 18.05 | 0.00 | 0.00 | 0.00 | 56.81 | 0.00 | 0.00 | 658.62 | 0.00 | 0.00 | -658.62 |
| | | Column totals | | | | | 0.00 | 0.00 | 598.74 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4823
September 14, 2015

**Division 8 RAMP SE**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 587+07 AH | 58707.30 | 0.00 | 0.00 | 0.00 | 451.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 587+50 | 58750.00 | 42.70 | 3.13 | 0.00 | 1334.39 | 0.00 | 2.48 | 0.00 | 1412.26 | 0.00 | 2.48 | 1553.48 | 0.00 | 0.00 | -1551.01 |
| 588+00 | 58800.00 | 50.00 | 3.77 | 0.00 | 1352.79 | 0.00 | 6.39 | 0.00 | 2488.13 | 0.00 | 8.86 | 4290.42 | 0.00 | 0.00 | -4281.56 |
| 588+50 | 58850.00 | 50.00 | 2.87 | 0.00 | 1336.84 | 0.00 | 6.15 | 0.00 | 2490.40 | 0.00 | 15.01 | 7027.99 | 0.00 | 0.00 | -7012.98 |
| 589+00 | 58900.00 | 50.00 | 3.31 | 0.00 | 1291.84 | 0.00 | 5.72 | 0.00 | 2433.96 | 0.00 | 20.73 | 9701.61 | 0.00 | 0.00 | -9680.88 |
| 589+50 | 58950.00 | 50.00 | 2.91 | 0.00 | 1246.16 | 0.00 | 5.76 | 0.00 | 2350.00 | 0.00 | 26.49 | 12146.82 | 0.00 | 0.00 | -12120.32 |
| 590+00 BK | 59000.00 | 50.00 | 1.99 | 0.00 | 1215.32 | 0.00 | 4.54 | 0.00 | 2279.15 | 0.00 | 31.03 | 14653.88 | 0.00 | 0.00 | -14622.85 |
| | | | | | Column totals | | 31.03 | 0.00 | 13453.89 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4824
September 14, 2015

**Division 8 RAMP LD**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 708+10 AH | 70810.01 | 0.00 | 93.52 | 0.00 | 37.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 708+29 | 70829.00 | 18.99 | 92.22 | 0.00 | 41.02 | 0.00 | 65.32 | 0.00 | 27.47 | 0.00 | 65.32 | 30.21 | 0.00 | 0.00 | 35.11 |
| 708+29 | 70829.00 | 0.00 | 147.10 | 0.00 | 14.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 65.32 | 30.21 | 0.00 | 0.00 | 35.11 |
| 708+50 | 70850.00 | 21.00 | 173.18 | 0.00 | 38.77 | 0.00 | 124.55 | 0.00 | 20.87 | 0.00 | 189.87 | 53.17 | 0.00 | 0.00 | 136.70 |
| 709+00 | 70900.00 | 50.00 | 90.12 | 0.00 | 44.63 | 0.00 | 243.80 | 0.00 | 77.22 | 0.00 | 433.67 | 138.11 | 0.00 | 0.00 | 295.55 |
| 709+50 | 70950.00 | 50.00 | 73.96 | 0.00 | 45.04 | 0.00 | 151.93 | 0.00 | 83.03 | 0.00 | 585.59 | 229.45 | 0.00 | 0.00 | 356.15 |
| 710+00 | 71000.00 | 50.00 | 60.49 | 0.00 | 29.33 | 0.00 | 124.49 | 0.00 | 68.86 | 0.00 | 710.08 | 305.19 | 0.00 | 0.00 | 404.89 |
| 710+50 | 71050.00 | 50.00 | 74.56 | 0.00 | 4.38 | 0.00 | 125.05 | 0.00 | 31.21 | 0.00 | 835.13 | 339.53 | 0.00 | 0.00 | 495.60 |
| 710+64 | 71064.00 | 14.00 | 107.54 | 0.00 | 0.19 | 0.00 | 47.21 | 0.00 | 1.18 | 0.00 | 882.34 | 340.83 | 0.00 | 0.00 | 541.51 |
| 710+64 | 71064.00 | 0.00 | 164.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 882.34 | 340.83 | 0.00 | 0.00 | 541.51 |
| 711+00 | 71100.00 | 36.00 | 137.88 | 0.00 | 0.00 | 0.00 | 201.86 | 0.00 | 0.00 | 0.00 | 1084.20 | 340.83 | 0.00 | 0.00 | 743.37 |
| 711+50 | 71150.00 | 50.00 | 127.02 | 0.00 | 0.00 | 0.00 | 245.28 | 0.00 | 0.00 | 0.00 | 1329.48 | 340.83 | 0.00 | 0.00 | 988.65 |
| 712+00 | 71200.00 | 50.00 | 114.77 | 0.00 | 0.00 | 0.00 | 223.88 | 0.00 | 0.00 | 0.00 | 1553.36 | 340.83 | 0.00 | 0.00 | 1212.53 |
| 712+50 | 71250.00 | 50.00 | 96.88 | 0.00 | 0.00 | 0.00 | 195.97 | 0.00 | 0.00 | 0.00 | 1749.33 | 340.83 | 0.00 | 0.00 | 1408.50 |
| 712+62 BK | 71262.48 | 12.48 | 86.39 | 0.00 | 0.00 | 0.00 | 42.36 | 0.00 | 0.00 | 0.00 | 1791.69 | 340.83 | 0.00 | 0.00 | 1450.86 |
| | | Column totals | | | | | 1791.69 | 0.00 | 309.85 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4825
September 14, 2015

**Division 8 RAMP GA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 761+00 AH | 76100.00 | 0.00 | 33.36 | 0.00 | 13.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 761+50 | 76150.00 | 50.00 | 40.92 | 0.00 | 8.94 | 0.00 | 68.78 | 0.00 | 20.93 | 0.00 | 68.78 | 23.02 | 0.00 | 0.00 | 45.76 |
| 762+00 | 76200.00 | 50.00 | 44.23 | 0.00 | 6.83 | 0.00 | 78.84 | 0.00 | 14.60 | 0.00 | 147.62 | 39.08 | 0.00 | 0.00 | 108.54 |
| 762+37 | 76237.00 | 37.00 | 43.10 | 0.00 | 6.91 | 0.00 | 59.84 | 0.00 | 9.41 | 0.00 | 207.46 | 49.44 | 0.00 | 0.00 | 158.02 |
| 762+37 | 76237.00 | 0.00 | 58.55 | 0.00 | 6.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 207.46 | 49.44 | 0.00 | 0.00 | 158.02 |
| 762+50 | 76250.00 | 13.00 | 58.75 | 0.00 | 7.70 | 0.00 | 28.24 | 0.00 | 3.52 | 0.00 | 235.70 | 53.31 | 0.00 | 0.00 | 182.39 |
| 763+00 | 76300.00 | 50.00 | 63.02 | 0.00 | 0.18 | 0.00 | 112.75 | 0.00 | 7.30 | 0.00 | 348.45 | 61.33 | 0.00 | 0.00 | 287.12 |
| 763+50 | 76350.00 | 50.00 | 59.21 | 0.00 | 6.26 | 0.00 | 113.18 | 0.00 | 5.96 | 0.00 | 461.62 | 67.89 | 0.00 | 0.00 | 393.73 |
| 764+00 | 76400.00 | 50.00 | 59.00 | 0.00 | 4.38 | 0.00 | 109.45 | 0.00 | 9.85 | 0.00 | 571.08 | 78.73 | 0.00 | 0.00 | 492.35 |
| 764+29 | 76429.00 | 29.00 | 66.85 | 0.00 | 0.65 | 0.00 | 67.59 | 0.00 | 2.70 | 0.00 | 638.66 | 81.70 | 0.00 | 0.00 | 556.96 |
| 764+29 | 76429.00 | 0.00 | 43.81 | 0.00 | 0.55 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 638.66 | 81.70 | 0.00 | 0.00 | 556.96 |
| 764+50 | 76450.00 | 21.00 | 54.74 | 0.00 | 0.01 | 0.00 | 38.33 | 0.00 | 0.22 | 0.00 | 676.99 | 81.94 | 0.00 | 0.00 | 595.05 |
| 765+00 | 76500.00 | 50.00 | 76.35 | 0.00 | 0.00 | 0.00 | 121.38 | 0.00 | 0.01 | 0.00 | 798.37 | 81.95 | 0.00 | 0.00 | 716.42 |
| 765+50 | 76550.00 | 50.00 | 75.22 | 0.00 | 0.00 | 0.00 | 140.34 | 0.00 | 0.00 | 0.00 | 938.71 | 81.95 | 0.00 | 0.00 | 856.76 |
| 766+00 | 76600.00 | 50.00 | 38.27 | 0.00 | 0.00 | 0.00 | 105.08 | 0.00 | 0.00 | 0.00 | 1043.79 | 81.95 | 0.00 | 0.00 | 961.84 |
| 766+00 | 76600.00 | 0.00 | 38.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1043.79 | 81.95 | 0.00 | 0.00 | 961.84 |
| 766+50 BK | 76649.79 | 49.79 | 113.26 | 0.00 | 0.05 | 0.00 | 139.68 | 0.00 | 0.05 | 0.00 | 1183.47 | 82.00 | 0.00 | 0.00 | 1101.47 |
| | | | | | | Column totals | 1183.47 | 0.00 | 74.54 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4826
September 14, 2015

**Division 8 RAMP GE**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 764+53 AH | 76453.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 765+00 | 76500.00 | 46.80 | 27.24 | 0.00 | 0.00 | 0.00 | 23.61 | 0.00 | 0.00 | 0.00 | 23.61 | 0.00 | 0.00 | 0.00 | 23.61 |
| 765+50 | 76550.00 | 50.00 | 43.54 | 0.00 | 0.00 | 0.00 | 65.54 | 0.00 | 0.00 | 0.00 | 89.15 | 0.00 | 0.00 | 0.00 | 89.15 |
| 766+00 | 76600.00 | 50.00 | 46.62 | 0.00 | 1.85 | 0.00 | 83.48 | 0.00 | 1.71 | 0.00 | 172.63 | 1.88 | 0.00 | 0.00 | 170.74 |
| 766+50 | 76650.00 | 50.00 | 54.17 | 0.00 | 1.29 | 0.00 | 93.32 | 0.00 | 2.91 | 0.00 | 265.95 | 5.08 | 0.00 | 0.00 | 260.87 |
| 767+00 | 76700.00 | 50.00 | 59.13 | 0.00 | 0.67 | 0.00 | 104.91 | 0.00 | 1.81 | 0.00 | 370.86 | 7.08 | 0.00 | 0.00 | 363.78 |
| 767+50 | 76750.00 | 50.00 | 58.02 | 0.00 | 4.32 | 0.00 | 108.47 | 0.00 | 4.62 | 0.00 | 479.33 | 12.16 | 0.00 | 0.00 | 467.17 |
| 768+00 | 76800.00 | 50.00 | 56.25 | 0.00 | 7.55 | 0.00 | 105.81 | 0.00 | 10.99 | 0.00 | 585.14 | 24.25 | 0.00 | 0.00 | 560.88 |
| 768+50 | 76850.00 | 50.00 | 52.98 | 0.00 | 16.57 | 0.00 | 101.14 | 0.00 | 22.33 | 0.00 | 686.27 | 48.82 | 0.00 | 0.00 | 637.46 |
| 769+00 | 76900.00 | 50.00 | 45.73 | 0.00 | 37.32 | 0.00 | 91.40 | 0.00 | 49.90 | 0.00 | 777.67 | 103.71 | 0.00 | 0.00 | 673.97 |
| 769+45 | 76945.00 | 45.00 | 41.48 | 0.00 | 56.97 | 0.00 | 72.68 | 0.00 | 78.58 | 0.00 | 850.35 | 190.14 | 0.00 | 0.00 | 660.21 |
| 769+45 | 76945.00 | 0.00 | 41.46 | 0.00 | 57.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 850.35 | 190.14 | 0.00 | 0.00 | 660.21 |
| 769+50 | 76950.00 | 5.00 | 41.40 | 0.00 | 58.07 | 0.00 | 7.67 | 0.00 | 10.67 | 0.00 | 858.02 | 201.88 | 0.00 | 0.00 | 656.14 |
| 770+00 | 77000.00 | 50.00 | 104.43 | 0.00 | 60.85 | 0.00 | 135.03 | 0.00 | 110.11 | 0.00 | 993.05 | 323.00 | 0.00 | 0.00 | 670.05 |
| 770+50 | 77050.00 | 50.00 | 93.29 | 0.00 | 75.60 | 0.00 | 183.07 | 0.00 | 126.34 | 0.00 | 1176.12 | 461.98 | 0.00 | 0.00 | 714.15 |
| 771+00 | 77100.00 | 50.00 | 74.09 | 0.00 | 83.87 | 0.00 | 154.98 | 0.00 | 147.66 | 0.00 | 1331.10 | 624.40 | 0.00 | 0.00 | 706.70 |
| 771+50 | 77150.00 | 50.00 | 49.24 | 0.00 | 97.50 | 0.00 | 114.19 | 0.00 | 167.94 | 0.00 | 1445.30 | 809.13 | 0.00 | 0.00 | 636.17 |
| 772+00 | 77200.00 | 50.00 | 31.28 | 0.00 | 168.84 | 0.00 | 74.56 | 0.00 | 246.61 | 0.00 | 1519.85 | 1080.40 | 0.00 | 0.00 | 439.45 |
| 772+50 | 77250.00 | 50.00 | 23.47 | 0.00 | 171.60 | 0.00 | 50.69 | 0.00 | 315.22 | 0.00 | 1570.55 | 1427.14 | 0.00 | 0.00 | 143.40 |
| 773+00 | 77300.00 | 50.00 | 23.39 | 0.00 | 171.53 | 0.00 | 43.39 | 0.00 | 317.71 | 0.00 | 1613.94 | 1776.63 | 0.00 | 0.00 | -162.69 |
| 773+50 | 77350.00 | 50.00 | 39.22 | 0.00 | 212.15 | 0.00 | 57.97 | 0.00 | 355.26 | 0.00 | 1671.91 | 2167.41 | 0.00 | 0.00 | -495.50 |
| 774+00 | 77400.00 | 50.00 | 57.83 | 0.00 | 276.84 | 0.00 | 89.86 | 0.00 | 452.77 | 0.00 | 1761.77 | 2665.46 | 0.00 | 0.00 | -903.69 |
| 774+50 | 77450.00 | 50.00 | 67.67 | 0.00 | 317.45 | 0.00 | 116.20 | 0.00 | 550.27 | 0.00 | 1877.97 | 3270.75 | 0.00 | 0.00 | -1392.78 |
| 775+00 | 77500.00 | 50.00 | 73.50 | 0.00 | 313.21 | 0.00 | 130.71 | 0.00 | 583.94 | 0.00 | 2008.69 | 3913.09 | 0.00 | 0.00 | -1904.41 |
| 775+50 | 77550.00 | 50.00 | 80.32 | 0.00 | 259.98 | 0.00 | 142.43 | 0.00 | 530.73 | 0.00 | 2151.11 | 4496.90 | 0.00 | 0.00 | -2345.79 |
| 776+00 | 77600.00 | 50.00 | 99.96 | 0.00 | 167.18 | 0.00 | 166.93 | 0.00 | 395.52 | 0.00 | 2318.04 | 4931.97 | 0.00 | 0.00 | -2613.93 |
| 776+50 | 77650.00 | 50.00 | 108.87 | 0.00 | 101.94 | 0.00 | 193.36 | 0.00 | 249.19 | 0.00 | 2511.40 | 5206.07 | 0.00 | 0.00 | -2694.67 |
| 777+00 | 77700.00 | 50.00 | 113.12 | 0.00 | 51.42 | 0.00 | 205.55 | 0.00 | 142.00 | 0.00 | 2716.95 | 5362.27 | 0.00 | 0.00 | -2645.33 |
| 777+01 | 77700.63 | 0.63 | 114.41 | 0.00 | 51.86 | 0.00 | 2.65 | 0.00 | 1.20 | 0.00 | 2719.60 | 5363.60 | 0.00 | 0.00 | -2644.00 |

1

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4827
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 8 RAMP GE**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 777+01 | 77700.63 | 0.00 | 74.82 | 0.00 | 1.98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2719.60 | 5363.60 | 0.00 | 0.00 | -2644.00 |
| 777+50 | 77750.00 | 49.37 | 72.20 | 0.00 | 2.28 | 0.00 | 134.41 | 0.00 | 3.89 | 0.00 | 2854.01 | 5367.88 | 0.00 | 0.00 | -2513.87 |
| 778+00 | 77800.00 | 50.00 | 79.63 | 0.00 | 0.54 | 0.00 | 140.58 | 0.00 | 2.61 | 0.00 | 2994.60 | 5370.75 | 0.00 | 0.00 | -2376.16 |
| 778+50 | 77850.00 | 50.00 | 97.94 | 0.00 | 0.02 | 0.00 | 164.42 | 0.00 | 0.52 | 0.00 | 3159.01 | 5371.32 | 0.00 | 0.00 | -2212.31 |
| | | | | | 0.00 | | | | | | | | | | |
| 778+50 | 77850.00 | 0.00 | 31.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3159.01 | 5371.32 | 0.00 | 0.00 | -2212.31 |
| 779+00 | 77900.00 | 50.00 | 26.64 | 0.00 | 0.14 | 0.00 | 53.39 | 0.00 | 0.13 | 0.00 | 3212.40 | 5371.47 | 0.00 | 0.00 | -2159.06 |
| 779+50 | 77950.00 | 50.00 | 27.63 | 0.00 | 0.12 | 0.00 | 50.25 | 0.00 | 0.24 | 0.00 | 3262.65 | 5371.73 | 0.00 | 0.00 | -2109.08 |
| 779+79 | 77978.75 | 28.75 | 36.01 | 0.00 | 6.96 | 0.00 | 33.88 | 0.00 | 3.77 | 0.00 | 3296.54 | 5375.88 | 0.00 | 0.00 | -2079.34 |
| 779+81 BK | 77981.19 | 2.44 | 0.00 | 0.00 | 0.00 | 0.00 | 1.63 | 0.00 | 0.31 | 0.00 | 3298.16 | 5376.22 | 0.00 | 0.00 | -2078.06 |
| 780+83 AH | 78083.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 780+93 | 78093.41 | 10.06 | 10.24 | 0.00 | 255.81 | 0.00 | 1.91 | 0.00 | 47.66 | 0.00 | 1.91 | 52.42 | 0.00 | 0.00 | -50.51 |
| 781+00 | 78100.00 | 6.59 | 35.30 | 0.00 | 92.04 | 0.00 | 5.56 | 0.00 | 42.45 | 0.00 | 7.47 | 99.12 | 0.00 | 0.00 | -91.65 |
| 781+50 | 78150.00 | 50.00 | 121.07 | 0.00 | 5.63 | 0.00 | 144.79 | 0.00 | 90.44 | 0.00 | 152.25 | 198.60 | 0.00 | 0.00 | -46.34 |
| 782+00 | 78200.00 | 50.00 | 106.84 | 0.00 | 11.43 | 0.00 | 211.03 | 0.00 | 15.80 | 0.00 | 363.28 | 215.97 | 0.00 | 0.00 | 147.31 |
| 782+50 | 78250.00 | 50.00 | 116.86 | 0.00 | 15.67 | 0.00 | 207.13 | 0.00 | 25.09 | 0.00 | 570.41 | 243.57 | 0.00 | 0.00 | 326.84 |
| 783+00 | 78300.00 | 50.00 | 137.13 | 0.00 | 0.00 | 0.00 | 235.18 | 0.00 | 14.51 | 0.00 | 805.59 | 259.53 | 0.00 | 0.00 | 546.05 |
| 783+50 | 78350.00 | 50.00 | 120.30 | 0.00 | 0.12 | 0.00 | 238.36 | 0.00 | 0.11 | 0.00 | 1043.95 | 259.66 | 0.00 | 0.00 | 784.29 |
| 784+00 | 78400.00 | 50.00 | 175.58 | 0.00 | 18.77 | 0.00 | 273.96 | 0.00 | 17.49 | 0.00 | 1317.91 | 278.90 | 0.00 | 0.00 | 1039.01 |
| 784+50 | 78450.00 | 50.00 | 356.14 | 0.00 | 3.57 | 0.00 | 492.33 | 0.00 | 20.69 | 0.00 | 1810.24 | 301.65 | 0.00 | 0.00 | 1508.59 |
| 785+00 | 78500.00 | 50.00 | 531.54 | 0.00 | 4.11 | 0.00 | 821.93 | 0.00 | 7.11 | 0.00 | 2632.17 | 309.47 | 0.00 | 0.00 | 2322.70 |
| 785+47 | 78547.19 | 47.19 | 0.00 | 0.00 | 79.18 | 0.00 | 464.51 | 0.00 | 72.79 | 0.00 | 3096.68 | 389.54 | 0.00 | 0.00 | 2707.14 |
| 785+52 BK | 78552.06 | 4.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7.14 | 0.00 | 3096.68 | 397.39 | 0.00 | 0.00 | 2699.28 |

1

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4828
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 8 RAMP GE**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 786+50 AH | 78649.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 786+55 | 78654.60 | 4.87 | 0.00 | 0.00 | 98.87 | 0.00 | 0.00 | 0.00 | 8.92 | 0.00 | 0.00 | 9.81 | 0.00 | 0.00 | -9.81 |
| 787+00 | 78700.00 | 45.40 | 1090.19 | 0.00 | 0.00 | 0.00 | 916.57 | 0.00 | 83.12 | 0.00 | 916.57 | 101.24 | 0.00 | 0.00 | 815.32 |
| 787+50 | 78750.00 | 50.00 | 614.31 | 0.00 | 2.39 | 0.00 | 1578.24 | 0.00 | 2.21 | 0.00 | 2494.81 | 103.68 | 0.00 | 0.00 | 2391.13 |
| 788+00 | 78800.00 | 50.00 | 415.56 | 0.00 | 0.86 | 0.00 | 953.58 | 0.00 | 3.01 | 0.00 | 3448.39 | 106.99 | 0.00 | 0.00 | 3341.40 |
| 788+30 | 78830.00 | 30.00 | 401.23 | 0.00 | 0.23 | 0.00 | 453.77 | 0.00 | 0.61 | 0.00 | 3902.16 | 107.66 | 0.00 | 0.00 | 3794.51 |
| 788+30 | 78830.00 | 0.00 | 449.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3902.16 | 107.66 | 0.00 | 0.00 | 3794.51 |
| 788+50 | 78850.00 | 20.00 | 383.58 | 0.00 | 0.00 | 0.00 | 308.56 | 0.00 | 0.00 | 0.00 | 4210.73 | 107.66 | 0.00 | 0.00 | 4103.07 |
| 789+00 | 78900.00 | 50.00 | 212.73 | 0.00 | 0.00 | 0.00 | 552.14 | 0.00 | 0.00 | 0.00 | 4762.87 | 107.66 | 0.00 | 0.00 | 4655.21 |
| 789+50 | 78950.00 | 50.00 | 62.18 | 0.00 | 41.05 | 0.00 | 254.55 | 0.00 | 38.01 | 0.00 | 5017.41 | 149.47 | 0.00 | 0.00 | 4867.95 |
| 789+95 BK | 78994.53 | 44.53 | 0.00 | 0.00 | 696.15 | 0.00 | 51.28 | 0.00 | 607.92 | 0.00 | 5068.69 | 818.17 | 0.00 | 0.00 | 4250.51 |
| | | | | | | Column totals | 11463.53 | 0.00 | 5992.54 | 0.00 | | | | | |

3

1

Addendum No. 03
ID 1060-33-81
Revised Sheet 4829
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

**Division 8 RAMP BB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut Note 1 | Cumulative Vol (CY) Expanded Fill 1.00 / 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 799+61 AH | 79961.10 | 0.00 | 764.72 | 0.00 | 2.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 800+00 | 80000.00 | 38.90 | 424.17 | 0.00 | 0.57 | 0.00 | 856.44 | 0.00 | 2.02 | 0.00 | 856.44 | 2.22 | 0.00 | 0.00 | 854.22 |
| 800+50 | 80050.00 | 50.00 | 170.33 | 0.00 | 390.96 | 0.00 | 550.46 | 0.00 | 362.53 | 0.00 | 1406.90 | 401.00 | 0.00 | 0.00 | 1005.90 |
| 801+00 | 80100.00 | 50.00 | 121.43 | 0.00 | 1151.26 | 0.00 | 270.15 | 0.00 | 1427.98 | 0.00 | 1677.05 | 1971.78 | 0.00 | 0.00 | -294.73 |
| 801+50 | 80150.00 | 50.00 | 142.37 | 0.00 | 1062.22 | 0.00 | 244.26 | 0.00 | 2049.52 | 0.00 | 1921.31 | 4226.25 | 0.00 | 0.00 | -2304.94 |
| 802+00 | 80200.00 | 50.00 | 168.92 | 0.00 | 1181.72 | 0.00 | 288.23 | 0.00 | 2077.72 | 0.00 | 2209.54 | 6511.74 | 0.00 | 0.00 | -4302.20 |
| 802+50 | 80250.00 | 50.00 | 265.47 | 0.00 | 1167.57 | 0.00 | 402.21 | 0.00 | 2175.27 | 0.00 | 2611.76 | 8904.54 | 0.00 | 0.00 | -6292.78 |
| 802+64 | 80264.00 | 14.00 | 379.39 | 0.00 | 1095.90 | 0.00 | 167.19 | 0.00 | 586.83 | 0.00 | 2778.94 | 9550.05 | 0.00 | 0.00 | -6771.11 |
| 802+64 | 80264.00 | 0.00 | 313.97 | 0.00 | 1120.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2778.94 | 9550.05 | 0.00 | 0.00 | -6771.11 |
| 803+00 | 80300.00 | 36.00 | 472.43 | 0.00 | 962.50 | 0.00 | 524.27 | 0.00 | 1388.51 | 0.00 | 3303.21 | 11077.40 | 0.00 | 0.00 | -7774.20 |
| 803+50 | 80350.00 | 50.00 | 690.20 | 0.00 | 697.28 | 0.00 | 1076.51 | 0.00 | 1536.83 | 0.00 | 4379.72 | 12767.92 | 0.00 | 0.00 | -8388.20 |
| 804+00 | 80400.00 | 50.00 | 970.77 | 0.00 | 584.96 | 0.00 | 1537.94 | 0.00 | 1187.26 | 0.00 | 5917.65 | 14073.91 | 0.00 | 0.00 | -8156.25 |
| 804+50 | 80450.00 | 50.00 | 824.18 | 0.00 | 611.69 | 0.00 | 1661.99 | 0.00 | 1108.01 | 0.00 | 7579.64 | 15292.72 | 0.00 | 0.00 | -7713.07 |
| 804+60 BK | 80459.96 | 9.96 | 740.89 | 0.00 | 665.56 | 0.00 | 288.67 | 0.00 | 235.58 | 0.00 | 7868.31 | 15551.86 | 0.00 | 0.00 | -7683.54 |
| | | Column totals | | | | | 7868.31 | 0.00 | 14138.05 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4830
September 14, 2015

**Division 8 RAMP FC**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Salvaged/ Unusable Pavement Material Note 2 | Fill Note 3 | EBS | Cumulative Vol (CY) Cut Note 1 | Expanded Fill 1.1 | Expanded EBS Backfill 1.30 Note 4 | Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 796+00 AH | 79600.00 | 0.00 | 1556.19 | 0.00 | 55.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 796+50 | 79650.00 | 50.00 | 1344.44 | 0.00 | 0.00 | 0.00 | 2685.77 | 0.00 | 51.65 | 0.00 | 2685.77 | 56.81 | 0.00 | 0.00 | 2628.96 |
| 797+00 | 79700.00 | 50.00 | 1134.15 | 0.00 | 0.00 | 0.00 | 2294.99 | 0.00 | 0.00 | 0.00 | 4980.76 | 56.81 | 0.00 | 0.00 | 4923.95 |
| 797+50 | 79750.00 | 50.00 | 968.97 | 0.00 | 0.00 | 0.00 | 1947.33 | 0.00 | 0.00 | 0.00 | 6928.09 | 56.81 | 0.00 | 0.00 | 6871.28 |
| 798+00 | 79800.00 | 50.00 | 785.43 | 0.00 | 0.00 | 0.00 | 1624.44 | 0.00 | 0.00 | 0.00 | 8552.54 | 56.81 | 0.00 | 0.00 | 8495.72 |
| 798+50 | 79850.00 | 50.00 | 598.84 | 0.00 | 0.00 | 0.00 | 1281.73 | 0.00 | 0.00 | 0.00 | 9834.27 | 56.81 | 0.00 | 0.00 | 9777.46 |
| 799+00 | 79900.00 | 50.00 | 465.73 | 0.00 | 0.00 | 0.00 | 985.71 | 0.00 | 0.00 | 0.00 | 10819.98 | 56.81 | 0.00 | 0.00 | 10763.17 |
| 799+50 | 79950.00 | 50.00 | 376.22 | 0.00 | 0.00 | 0.00 | 779.58 | 0.00 | 0.00 | 0.00 | 11599.56 | 56.81 | 0.00 | 0.00 | 11542.75 |
| 800+00 | 80000.00 | 50.00 | 276.87 | 0.00 | 0.00 | 0.00 | 604.71 | 0.00 | 0.00 | 0.00 | 12204.28 | 56.81 | 0.00 | 0.00 | 12147.46 |
| 800+50 | 80050.00 | 50.00 | 180.51 | 0.00 | 0.00 | 0.00 | 423.50 | 0.00 | 0.00 | 0.00 | 12627.78 | 56.81 | 0.00 | 0.00 | 12570.96 |
| 801+00 | 80100.00 | 50.00 | 112.65 | 0.00 | 0.00 | 0.00 | 271.44 | 0.00 | 0.00 | 0.00 | 12899.22 | 56.81 | 0.00 | 0.00 | 12842.41 |
| 801+50 | 80150.00 | 50.00 | 86.88 | 0.00 | 0.00 | 0.00 | 184.75 | 0.00 | 0.00 | 0.00 | 13083.97 | 56.81 | 0.00 | 0.00 | 13027.16 |
| 801+60 BK | 80160.00 | 10.00 | 20.65 | 0.00 | 0.00 | 0.00 | 19.91 | 0.00 | 0.00 | 0.00 | 13103.89 | 56.81 | 0.00 | 0.00 | 13047.07 |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4831
September 14, 2015

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 8 RAMP FC**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 809+22 AH | 80922.38 | 0.00 | 22.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 809+50 | 80950.00 | 27.62 | 22.42 | 0.00 | 0.00 | 0.00 | 22.96 | 0.00 | 0.00 | 0.00 | 22.96 | 0.00 | 0.00 | 0.00 | 22.96 |
| 810+00 | 81000.00 | 50.00 | 22.42 | 0.00 | 0.00 | 0.00 | 41.52 | 0.00 | 0.00 | 0.00 | 64.48 | 0.00 | 0.00 | 0.00 | 64.48 |
| 810+50 | 81050.00 | 50.00 | 22.40 | 0.00 | 0.00 | 0.00 | 41.50 | 0.00 | 0.00 | 0.00 | 105.98 | 0.00 | 0.00 | 0.00 | 105.98 |
| 811+00 | 81100.00 | 50.00 | 22.33 | 0.00 | 0.00 | 0.00 | 41.42 | 0.00 | 0.00 | 0.00 | 147.40 | 0.00 | 0.00 | 0.00 | 147.40 |
| 811+50 | 81150.00 | 50.00 | 22.24 | 0.00 | 0.00 | 0.00 | 41.27 | 0.00 | 0.00 | 0.00 | 188.66 | 0.00 | 0.00 | 0.00 | 188.66 |
| 812+00 | 81200.00 | 50.00 | 22.23 | 0.00 | 0.00 | 0.00 | 41.18 | 0.00 | 0.00 | 0.00 | 229.84 | 0.00 | 0.00 | 0.00 | 229.84 |
| 812+50 | 81250.00 | 50.00 | 22.23 | 0.00 | 0.00 | 0.00 | 41.17 | 0.00 | 0.00 | 0.00 | 271.01 | 0.00 | 0.00 | 0.00 | 271.01 |
| 813+00 | 81300.00 | 50.00 | 22.23 | 0.00 | 0.00 | 0.00 | 41.17 | 0.00 | 0.00 | 0.00 | 312.17 | 0.00 | 0.00 | 0.00 | 312.17 |
| 813+50 | 81350.00 | 50.00 | 22.22 | 0.00 | 0.00 | 0.00 | 41.16 | 0.00 | 0.00 | 0.00 | 353.33 | 0.00 | 0.00 | 0.00 | 353.33 |
| 814+00 | 81400.00 | 50.00 | 22.22 | 0.00 | 0.00 | 0.00 | 41.15 | 0.00 | 0.00 | 0.00 | 394.48 | 0.00 | 0.00 | 0.00 | 394.48 |
| 814+50 | 81450.00 | 50.00 | 22.22 | 0.00 | 0.00 | 0.00 | 41.15 | 0.00 | 0.00 | 0.00 | 435.63 | 0.00 | 0.00 | 0.00 | 435.63 |
| 815+00 | 81500.00 | 50.00 | 22.21 | 0.00 | 0.00 | 0.00 | 41.14 | 0.00 | 0.00 | 0.00 | 476.77 | 0.00 | 0.00 | 0.00 | 476.77 |
| 815+50 | 81550.00 | 50.00 | 22.21 | 0.00 | 0.00 | 0.00 | 41.13 | 0.00 | 0.00 | 0.00 | 517.90 | 0.00 | 0.00 | 0.00 | 517.90 |
| 816+00 | 81600.00 | 50.00 | 22.21 | 0.00 | 0.00 | 0.00 | 41.13 | 0.00 | 0.00 | 0.00 | 559.03 | 0.00 | 0.00 | 0.00 | 559.03 |
| 816+50 | 81650.00 | 50.00 | 20.23 | 0.00 | 0.04 | 0.00 | 39.30 | 0.00 | 0.04 | 0.00 | 598.32 | 0.04 | 0.00 | 0.00 | 598.28 |
| 817+00 | 81700.00 | 50.00 | 18.69 | 0.00 | 0.92 | 0.00 | 36.04 | 0.00 | 0.89 | 0.00 | 634.36 | 1.02 | 0.00 | 0.00 | 633.34 |
| 817+50 | 81750.00 | 50.00 | 22.80 | 0.00 | 0.00 | 0.00 | 38.42 | 0.00 | 0.85 | 0.00 | 672.78 | 1.96 | 0.00 | 0.00 | 670.82 |
| 818+00 | 81800.00 | 50.00 | 24.04 | 0.00 | 0.00 | 0.00 | 43.37 | 0.00 | 0.00 | 0.00 | 716.15 | 1.96 | 0.00 | 0.00 | 714.19 |
| 818+50 | 81850.00 | 50.00 | 24.71 | 0.00 | 0.00 | 0.00 | 45.14 | 0.00 | 0.00 | 0.00 | 761.28 | 1.96 | 0.00 | 0.00 | 759.33 |
| 818+73 BK | 81873.05 | 23.05 | 27.48 | 0.00 | 0.00 | 0.00 | 22.28 | 0.00 | 0.00 | 0.00 | 783.56 | 1.96 | 0.00 | 0.00 | 781.61 |
| | | | | | | Column totals | 13887.45 | 0.00 | 53.43 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4832
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:39 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew207 PLOT SCALE : 1:1

**Division 8 W. SCHLINGER AVENUE**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 525+60 AH | 52560.01 | 0.00 | 54.65 | 0.00 | 0.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 526+00 | 52600.00 | 39.99 | 43.48 | 0.00 | 2.27 | 0.00 | 72.67 | 0.00 | 2.00 | 0.00 | 72.67 | 2.20 | 0.00 | 0.00 | 70.47 |
| 526+12 BK | 52612.08 | 12.08 | 41.06 | 0.00 | 10.18 | 0.00 | 18.91 | 0.00 | 2.79 | 0.00 | 91.58 | 5.26 | 0.00 | 0.00 | 86.32 |
| 526+76 AH | 52676.04 | 0.00 | 115.71 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 527+00 | 52700.00 | 23.96 | 165.03 | 0.00 | 0.17 | 0.00 | 124.57 | 0.00 | 0.13 | 0.00 | 124.57 | 0.14 | 0.00 | 0.00 | 124.42 |
| 527+50 | 52750.00 | 50.00 | 206.55 | 0.00 | 0.18 | 0.00 | 344.06 | 0.00 | 0.32 | 0.00 | 468.62 | 0.50 | 0.00 | 0.00 | 468.12 |
| 528+00 | 52800.00 | 50.00 | 153.88 | 0.00 | 0.19 | 0.00 | 333.73 | 0.00 | 0.34 | 0.00 | 802.35 | 0.87 | 0.00 | 0.00 | 801.48 |
| 528+50 | 52850.00 | 50.00 | 141.80 | 0.00 | 0.10 | 0.00 | 273.78 | 0.00 | 0.27 | 0.00 | 1076.13 | 1.17 | 0.00 | 0.00 | 1074.96 |
| 529+00 | 52900.00 | 50.00 | 144.49 | 0.00 | 0.00 | 0.00 | 265.08 | 0.00 | 0.09 | 0.00 | 1341.21 | 1.27 | 0.00 | 0.00 | 1339.94 |
| 529+50 | 52950.00 | 50.00 | 107.93 | 0.00 | 0.00 | 0.00 | 233.72 | 0.00 | 0.00 | 0.00 | 1574.94 | 1.27 | 0.00 | 0.00 | 1573.66 |
| 530+00 | 53000.00 | 50.00 | 123.13 | 0.00 | 0.00 | 0.00 | 213.94 | 0.00 | 0.00 | 0.00 | 1788.88 | 1.27 | 0.00 | 0.00 | 1787.61 |
| 530+50 | 53050.00 | 50.00 | 273.65 | 0.00 | 0.00 | 0.00 | 367.39 | 0.00 | 0.00 | 0.00 | 2156.27 | 1.27 | 0.00 | 0.00 | 2155.00 |
| 531+00 | 53100.00 | 50.00 | 96.83 | 0.00 | 0.00 | 0.00 | 343.04 | 0.00 | 0.00 | 0.00 | 2499.31 | 1.27 | 0.00 | 0.00 | 2498.03 |
| 531+50 | 53150.00 | 50.00 | 94.16 | 0.00 | 0.12 | 0.00 | 176.84 | 0.00 | 0.11 | 0.00 | 2676.15 | 1.39 | 0.00 | 0.00 | 2674.75 |
| 532+00 | 53200.00 | 50.00 | 94.30 | 0.00 | 0.29 | 0.00 | 174.50 | 0.00 | 0.38 | 0.00 | 2850.65 | 1.81 | 0.00 | 0.00 | 2848.84 |
| 532+50 | 53250.00 | 50.00 | 73.70 | 0.00 | 0.00 | 0.00 | 155.56 | 0.00 | 0.27 | 0.00 | 3006.20 | 2.11 | 0.00 | 0.00 | 3004.10 |
| 533+00 | 53300.00 | 50.00 | 20.89 | 0.00 | 0.22 | 0.00 | 87.58 | 0.00 | 0.20 | 0.00 | 3093.79 | 2.33 | 0.00 | 0.00 | 3091.46 |
| 533+10 BK | 53309.99 | 9.99 | 21.12 | 0.00 | 0.11 | 0.00 | 7.77 | 0.00 | 0.06 | 0.00 | 3101.56 | 2.40 | 0.00 | 0.00 | 3099.16 |
| | | Column totals | | | | | 3193.14 | 0.00 | 6.97 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4833
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:39 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew208 PLOT SCALE : 1:1

**Division 8 S. 100TH STREET (TD)**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30+51 AH | 3051.21 | 0.00 | 49.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 31+00 | 3100.00 | 48.79 | 82.49 | 0.00 | 0.00 | 0.00 | 119.16 | 0.00 | 0.00 | 0.00 | 119.16 | 0.00 | 0.00 | 0.00 | 119.16 |
| 31+50 | 3150.00 | 50.00 | 67.24 | 0.00 | 0.00 | 0.00 | 138.64 | 0.00 | 0.00 | 0.00 | 257.79 | 0.00 | 0.00 | 0.00 | 257.79 |
| 32+00 | 3200.00 | 50.00 | 61.31 | 0.00 | 0.31 | 0.00 | 119.03 | 0.00 | 0.29 | 0.00 | 376.82 | 0.32 | 0.00 | 0.00 | 376.51 |
| 32+50 | 3250.00 | 50.00 | 61.49 | 0.00 | 0.00 | 0.00 | 113.70 | 0.00 | 0.29 | 0.00 | 490.53 | 0.63 | 0.00 | 0.00 | 489.89 |
| 33+00 | 3300.00 | 50.00 | 55.71 | 0.00 | 0.48 | 0.00 | 108.52 | 0.00 | 0.44 | 0.00 | 599.04 | 1.12 | 0.00 | 0.00 | 597.92 |
| 33+50 | 3350.00 | 50.00 | 56.90 | 0.00 | 0.39 | 0.00 | 104.27 | 0.00 | 0.81 | 0.00 | 703.31 | 2.01 | 0.00 | 0.00 | 701.31 |
| 34+00 | 3400.00 | 50.00 | 59.31 | 0.00 | 0.08 | 0.00 | 107.60 | 0.00 | 0.44 | 0.00 | 810.92 | 2.49 | 0.00 | 0.00 | 808.43 |
| 34+50 | 3450.00 | 50.00 | 63.04 | 0.00 | 0.04 | 0.00 | 113.29 | 0.00 | 0.11 | 0.00 | 924.20 | 2.61 | 0.00 | 0.00 | 921.59 |
| 35+00 | 3500.00 | 50.00 | 51.03 | 0.00 | 0.45 | 0.00 | 105.62 | 0.00 | 0.45 | 0.00 | 1029.82 | 3.11 | 0.00 | 0.00 | 1026.72 |
| 35+50 | 3550.00 | 50.00 | 46.02 | 0.00 | 1.41 | 0.00 | 89.86 | 0.00 | 1.72 | 0.00 | 1119.68 | 5.00 | 0.00 | 0.00 | 1114.68 |
| 36+00 | 3600.00 | 50.00 | 60.78 | 0.00 | 0.33 | 0.00 | 98.89 | 0.00 | 1.61 | 0.00 | 1218.57 | 6.77 | 0.00 | 0.00 | 1211.80 |
| 36+50 | 3650.00 | 50.00 | 44.28 | 0.00 | 1.13 | 0.00 | 97.28 | 0.00 | 1.35 | 0.00 | 1315.85 | 8.26 | 0.00 | 0.00 | 1307.59 |
| 37+00 | 3700.00 | 50.00 | 38.35 | 0.00 | 1.48 | 0.00 | 76.51 | 0.00 | 2.42 | 0.00 | 1392.36 | 10.92 | 0.00 | 0.00 | 1381.44 |
| 37+50 | 3750.00 | 50.00 | 86.37 | 0.00 | 0.00 | 0.00 | 115.48 | 0.00 | 1.37 | 0.00 | 1507.84 | 12.43 | 0.00 | 0.00 | 1495.42 |
| 38+00 | 3800.00 | 50.00 | 59.78 | 0.00 | 1.05 | 0.00 | 135.32 | 0.00 | 0.97 | 0.00 | 1643.17 | 13.50 | 0.00 | 0.00 | 1629.67 |
| 38+50 | 3850.00 | 50.00 | 85.17 | 0.00 | 0.00 | 0.00 | 134.21 | 0.00 | 0.97 | 0.00 | 1777.38 | 14.56 | 0.00 | 0.00 | 1762.81 |
| 39+00 | 3900.00 | 50.00 | 95.05 | 0.00 | 0.00 | 0.00 | 166.87 | 0.00 | 0.00 | 0.00 | 1944.25 | 14.56 | 0.00 | 0.00 | 1929.68 |
| 39+50 | 3950.00 | 50.00 | 127.58 | 0.00 | 0.00 | 0.00 | 206.14 | 0.00 | 0.00 | 0.00 | 2150.39 | 14.56 | 0.00 | 0.00 | 2135.82 |
| 40+00 | 4000.00 | 50.00 | 81.96 | 0.00 | 0.00 | 0.00 | 194.02 | 0.00 | 0.00 | 0.00 | 2344.41 | 14.56 | 0.00 | 0.00 | 2329.84 |
| 40+50 | 4050.00 | 50.00 | 66.95 | 0.00 | 0.00 | 0.00 | 137.88 | 0.00 | 0.00 | 0.00 | 2482.29 | 14.56 | 0.00 | 0.00 | 2467.72 |
| 41+00 | 4100.00 | 50.00 | 51.93 | 0.00 | 6.52 | 0.00 | 110.07 | 0.00 | 6.04 | 0.00 | 2592.36 | 21.21 | 0.00 | 0.00 | 2571.15 |
| 41+50 | 4150.00 | 50.00 | 56.54 | 0.00 | 42.31 | 0.00 | 100.44 | 0.00 | 45.21 | 0.00 | 2692.79 | 70.94 | 0.00 | 0.00 | 2621.86 |
| 42+00 | 4200.00 | 50.00 | 53.53 | 0.00 | 63.10 | 0.00 | 101.92 | 0.00 | 97.60 | 0.00 | 2794.71 | 178.30 | 0.00 | 0.00 | 2616.41 |
| 42+33 BK | 4232.85 | 32.85 | 38.01 | 0.00 | 121.52 | 0.00 | 55.69 | 0.00 | 112.31 | 0.00 | 2850.40 | 301.84 | 0.00 | 0.00 | 2548.56 |
| | | Column totals | | | | | 2850.40 | 0.00 | 274.40 | 0.00 | | | | | |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4834
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

**Division 8 ACCESS PATH (XM)**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16+93 AH | 1693.23 | 0.00 | 5.86 | 0.00 | 57.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 17+00 | 1700.00 | 6.77 | 7.04 | 0.00 | 56.19 | 0.00 | 1.62 | 0.00 | 14.31 | 0.00 | 1.62 | 15.74 | 0.00 | 0.00 | -14.12 |
| 17+50 | 1750.00 | 50.00 | 24.88 | 0.00 | 22.10 | 0.00 | 29.56 | 0.00 | 72.49 | 0.00 | 31.17 | 95.48 | 0.00 | 0.00 | -64.30 |
| 18+00 | 1800.00 | 50.00 | 15.10 | 0.00 | 0.99 | 0.00 | 37.02 | 0.00 | 21.38 | 0.00 | 68.19 | 119.00 | 0.00 | 0.00 | -50.80 |
| 18+50 | 1850.00 | 50.00 | 34.10 | 0.00 | 0.00 | 0.00 | 45.56 | 0.00 | 0.92 | 0.00 | 113.75 | 120.00 | 0.00 | 0.00 | -6.26 |
| 19+00 | 1900.00 | 50.00 | 56.69 | 0.00 | 0.00 | 0.00 | 84.06 | 0.00 | 0.00 | 0.00 | 197.81 | 120.00 | 0.00 | 0.00 | 77.81 |
| 19+50 | 1950.00 | 50.00 | 54.70 | 0.00 | 0.00 | 0.00 | 103.14 | 0.00 | 0.00 | 0.00 | 300.95 | 120.00 | 0.00 | 0.00 | 180.95 |
| 20+00 | 2000.00 | 50.00 | 71.68 | 0.00 | 0.00 | 0.00 | 117.02 | 0.00 | 0.00 | 0.00 | 417.97 | 120.00 | 0.00 | 0.00 | 297.97 |
| 20+50 | 2050.00 | 50.00 | 48.35 | 0.00 | 0.38 | 0.00 | 111.14 | 0.00 | 0.35 | 0.00 | 529.11 | 120.39 | 0.00 | 0.00 | 408.72 |
| 21+00 | 2100.00 | 50.00 | 43.44 | 0.00 | 0.35 | 0.00 | 84.99 | 0.00 | 0.68 | 0.00 | 614.10 | 121.13 | 0.00 | 0.00 | 492.96 |
| 21+50 | 2150.00 | 50.00 | 47.09 | 0.00 | 0.00 | 0.00 | 83.82 | 0.00 | 0.32 | 0.00 | 697.92 | 121.49 | 0.00 | 0.00 | 576.43 |
| 22+00 | 2200.00 | 50.00 | 48.21 | 0.00 | 0.00 | 0.00 | 88.24 | 0.00 | 0.00 | 0.00 | 786.16 | 121.49 | 0.00 | 0.00 | 664.67 |
| 22+50 | 2250.00 | 50.00 | 35.22 | 0.00 | 0.06 | 0.00 | 77.25 | 0.00 | 0.06 | 0.00 | 863.41 | 121.55 | 0.00 | 0.00 | 741.86 |
| 23+00 | 2300.00 | 50.00 | 17.21 | 0.00 | 18.05 | 0.00 | 48.55 | 0.00 | 16.77 | 0.00 | 911.96 | 140.00 | 0.00 | 0.00 | 771.96 |
| 23+50 | 2350.00 | 50.00 | 124.41 | 0.00 | 0.26 | 0.00 | 131.13 | 0.00 | 16.95 | 0.00 | 1043.09 | 158.65 | 0.00 | 0.00 | 884.44 |
| 24+00 | 2400.00 | 50.00 | 15.37 | 0.00 | 50.00 | 0.00 | 129.43 | 0.00 | 46.54 | 0.00 | 1172.52 | 209.84 | 0.00 | 0.00 | 962.68 |
| 24+50 | 2450.00 | 50.00 | 131.31 | 0.00 | 0.00 | 0.00 | 135.81 | 0.00 | 46.30 | 0.00 | 1308.33 | 260.76 | 0.00 | 0.00 | 1047.57 |
| 24+70 BK | 2470.00 | 20.00 | 1.94 | 0.00 | 0.00 | 0.00 | 49.35 | 0.00 | 0.00 | 0.00 | 1357.68 | 260.76 | 0.00 | 0.00 | 1096.92 |
| | | | | | | Column totals | 1357.68 | 0.00 | 237.06 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4835
September 14, 2015

9

9



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\090101_ew.ppt PLOT DATE : 9/1/2015 9:42:39 AM PLOT BY : MSCCEJ PLOT NAME : 090101_ew210 PLOT SCALE : 1:1

**Division 8 HA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 111+34 AH | 11134.36 | 0.00 | 0.00 | 0.00 | 3.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111+50 | 11150.00 | 15.64 | 0.04 | 0.00 | 1.83 | 0.00 | 0.01 | 0.00 | 1.41 | 0.00 | 0.01 | 1.55 | 0.00 | 0.00 | 0.00 |
| 112+00 | 11200.00 | 50.00 | 5.58 | 0.00 | 0.01 | 0.00 | 5.20 | 0.00 | 1.70 | 0.00 | 5.22 | 3.43 | 0.00 | 0.00 | 0.00 |
| 112+50 | 11250.00 | 50.00 | 0.73 | 0.00 | 5.29 | 0.00 | 5.84 | 0.00 | 4.91 | 0.00 | 11.06 | 8.82 | 0.00 | 0.00 | 0.00 |
| 113+00 | 11300.00 | 50.00 | 0.00 | 0.00 | 14.98 | 0.00 | 0.68 | 0.00 | 18.77 | 0.00 | 11.73 | 29.47 | 0.00 | 0.00 | 0.00 |
| 113+50 | 11350.00 | 50.00 | 0.00 | 0.00 | 28.28 | 0.00 | 0.00 | 0.00 | 40.06 | 0.00 | 11.73 | 73.53 | 0.00 | 0.00 | 0.00 |
| 114+00 | 11400.00 | 50.00 | 0.00 | 0.00 | 148.75 | 0.00 | 0.00 | 0.00 | 163.92 | 0.00 | 11.73 | 253.84 | 0.00 | 0.00 | 0.00 |
| 114+50 | 11450.00 | 50.00 | 0.73 | 0.00 | 40.42 | 0.00 | 0.68 | 0.00 | 175.16 | 0.00 | 12.41 | 446.51 | 0.00 | 0.00 | 0.00 |
| 115+00 | 11500.00 | 50.00 | 0.00 | 0.00 | 51.78 | 0.00 | 0.68 | 0.00 | 85.37 | 0.00 | 13.09 | 540.42 | 0.00 | 0.00 | 0.00 |
| 115+50 | 11550.00 | 50.00 | 0.00 | 0.00 | 15.16 | 0.00 | 0.00 | 0.00 | 61.98 | 0.00 | 13.09 | 608.60 | 0.00 | 0.00 | 0.00 |
| 116+00 | 11600.00 | 50.00 | 0.00 | 0.00 | 12.05 | 0.00 | 0.00 | 0.00 | 25.19 | 0.00 | 13.09 | 636.31 | 0.00 | 0.00 | 0.00 |
| 116+50 | 11650.00 | 50.00 | 14.01 | 0.00 | 18.77 | 0.00 | 12.97 | 0.00 | 28.54 | 0.00 | 26.06 | 667.70 | 0.00 | 0.00 | 0.00 |
| 117+00 | 11700.00 | 50.00 | 0.00 | 0.00 | 12.94 | 0.00 | 12.97 | 0.00 | 29.36 | 0.00 | 39.03 | 700.00 | 0.00 | 0.00 | 0.00 |
| 117+50 | 11750.00 | 50.00 | 0.00 | 0.00 | 15.46 | 0.00 | 0.00 | 0.00 | 26.30 | 0.00 | 39.03 | 728.93 | 0.00 | 0.00 | 0.00 |
| 118+00 | 11800.00 | 50.00 | 0.00 | 0.00 | 15.88 | 0.00 | 0.00 | 0.00 | 29.02 | 0.00 | 39.03 | 760.85 | 0.00 | 0.00 | 0.00 |
| 118+50 | 11850.00 | 50.00 | 3.19 | 0.00 | 6.21 | 0.00 | 2.95 | 0.00 | 20.45 | 0.00 | 41.98 | 783.35 | 0.00 | 0.00 | 0.00 |
| 119+00 | 11900.00 | 50.00 | 22.41 | 0.00 | 8.11 | 0.00 | 23.70 | 0.00 | 13.26 | 0.00 | 65.69 | 797.93 | 0.00 | 0.00 | 0.00 |
| 119+50 | 11950.00 | 50.00 | 27.67 | 0.00 | 8.66 | 0.00 | 46.37 | 0.00 | 15.53 | 0.00 | 112.06 | 815.01 | 0.00 | 0.00 | 0.00 |
| 120+00 | 12000.00 | 50.00 | 8.41 | 0.00 | 6.74 | 0.00 | 33.41 | 0.00 | 14.26 | 0.00 | 145.47 | 830.70 | 0.00 | 0.00 | 0.00 |
| 120+50 | 12050.00 | 50.00 | 6.93 | 0.00 | 1.05 | 0.00 | 14.20 | 0.00 | 7.21 | 0.00 | 159.67 | 838.63 | 0.00 | 0.00 | 0.00 |
| 121+00 | 12100.00 | 50.00 | 11.68 | 0.00 | 0.00 | 0.00 | 17.23 | 0.00 | 0.97 | 0.00 | 176.90 | 839.70 | 0.00 | 0.00 | 0.00 |
| 121+50 | 12150.00 | 50.00 | 10.03 | 0.00 | 1.31 | 0.00 | 20.10 | 0.00 | 1.21 | 0.00 | 197.00 | 841.03 | 0.00 | 0.00 | 0.00 |
| 122+00 | 12200.00 | 50.00 | 6.65 | 0.00 | 1.76 | 0.00 | 15.44 | 0.00 | 2.84 | 0.00 | 212.45 | 844.16 | 0.00 | 0.00 | 0.00 |
| 122+50 | 12250.00 | 50.00 | 10.62 | 0.00 | 4.53 | 0.00 | 15.99 | 0.00 | 5.82 | 0.00 | 228.44 | 850.57 | 0.00 | 0.00 | 0.00 |
| 123+00 | 12300.00 | 50.00 | 38.40 | 0.00 | 1.96 | 0.00 | 45.39 | 0.00 | 6.01 | 0.00 | 273.83 | 857.18 | 0.00 | 0.00 | 0.00 |
| 123+50 | 12350.00 | 50.00 | 38.63 | 0.00 | 1.70 | 0.00 | 71.32 | 0.00 | 3.39 | 0.00 | 345.15 | 860.91 | 0.00 | 0.00 | 0.00 |
| 124+00 | 12400.00 | 50.00 | 0.21 | 0.00 | 0.99 | 0.00 | 35.96 | 0.00 | 2.49 | 0.00 | 381.11 | 863.65 | 0.00 | 0.00 | 0.00 |
| 124+50 | 12450.00 | 50.00 | 0.17 | 0.00 | 2.00 | 0.00 | 0.35 | 0.00 | 2.77 | 0.00 | 381.47 | 866.69 | 0.00 | 0.00 | 0.00 |
| 125+00 | 12500.00 | 50.00 | 0.04 | 0.00 | 3.40 | 0.00 | 0.19 | 0.00 | 5.00 | 0.00 | 381.66 | 872.19 | 0.00 | 0.00 | 0.00 |
| 125+50 | 12550.00 | 50.00 | 0.33 | 0.00 | 3.27 | 0.00 | 0.34 | 0.00 | 6.18 | 0.00 | 382.00 | 878.98 | 0.00 | 0.00 | 0.00 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4836
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 8 HA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 126+00 | 12600.00 | 50.00 | 0.84 | 0.00 | 2.98 | 0.00 | 1.08 | 0.00 | 5.79 | 0.00 | 383.09 | 885.35 | 0.00 | 0.00 | 0.00 |
| 126+50 | 12650.00 | 50.00 | 0.44 | 0.00 | 3.41 | 0.00 | 1.19 | 0.00 | 5.92 | 0.00 | 384.27 | 891.86 | 0.00 | 0.00 | 0.00 |
| 127+00 | 12700.00 | 50.00 | 0.27 | 0.00 | 4.71 | 0.00 | 0.66 | 0.00 | 7.52 | 0.00 | 384.93 | 900.13 | 0.00 | 0.00 | 0.00 |
| 127+50 | 12750.00 | 50.00 | 0.00 | 0.00 | 6.47 | 0.00 | 0.25 | 0.00 | 10.35 | 0.00 | 385.18 | 911.52 | 0.00 | 0.00 | 0.00 |
| 128+00 | 12800.00 | 50.00 | 0.00 | 0.00 | 4.69 | 0.00 | 0.00 | 0.00 | 10.33 | 0.00 | 385.18 | 922.88 | 0.00 | 0.00 | 0.00 |
| 128+50 | 12850.00 | 50.00 | 0.00 | 0.00 | 8.37 | 0.00 | 0.00 | 0.00 | 12.09 | 0.00 | 385.18 | 936.18 | 0.00 | 0.00 | 0.00 |
| 129+00 | 12900.00 | 50.00 | 0.00 | 0.00 | 8.89 | 0.00 | 0.00 | 0.00 | 15.98 | 0.00 | 385.18 | 953.76 | 0.00 | 0.00 | 0.00 |
| 129+50 | 12950.00 | 50.00 | 1.36 | 0.00 | 0.55 | 0.00 | 1.26 | 0.00 | 8.74 | 0.00 | 386.44 | 963.38 | 0.00 | 0.00 | 0.00 |
| 130+00 | 13000.00 | 50.00 | 0.07 | 0.00 | 2.69 | 0.00 | 1.32 | 0.00 | 3.00 | 0.00 | 387.76 | 966.68 | 0.00 | 0.00 | 0.00 |
| 130+50 | 13050.00 | 50.00 | 0.01 | 0.00 | 4.97 | 0.00 | 0.07 | 0.00 | 7.09 | 0.00 | 387.84 | 974.48 | 0.00 | 0.00 | 0.00 |
| 131+00 | 13100.00 | 50.00 | 0.07 | 0.00 | 4.28 | 0.00 | 0.07 | 0.00 | 8.56 | 0.00 | 387.91 | 983.90 | 0.00 | 0.00 | 0.00 |
| 131+50 | 13150.00 | 50.00 | 0.85 | 0.00 | 1.12 | 0.00 | 0.85 | 0.00 | 5.00 | 0.00 | 388.76 | 989.40 | 0.00 | 0.00 | 0.00 |
| 132+00 | 13200.00 | 50.00 | 0.00 | 0.00 | 7.47 | 0.00 | 0.79 | 0.00 | 7.95 | 0.00 | 389.55 | 998.15 | 0.00 | 0.00 | 0.00 |
| 132+50 | 13250.00 | 50.00 | 0.00 | 0.00 | 10.19 | 0.00 | 0.00 | 0.00 | 16.35 | 0.00 | 389.55 | 1016.14 | 0.00 | 0.00 | 0.00 |
| 133+00 | 13300.00 | 50.00 | 0.00 | 0.00 | 13.03 | 0.00 | 0.00 | 0.00 | 21.50 | 0.00 | 389.55 | 1039.79 | 0.00 | 0.00 | 0.00 |
| 133+50 | 13350.00 | 50.00 | 0.00 | 0.00 | 14.24 | 0.00 | 0.00 | 0.00 | 25.25 | 0.00 | 389.55 | 1067.56 | 0.00 | 0.00 | 0.00 |
| 134+00 | 13400.00 | 50.00 | 0.00 | 0.00 | 16.48 | 0.00 | 0.00 | 0.00 | 28.44 | 0.00 | 389.55 | 1098.85 | 0.00 | 0.00 | 0.00 |
| 134+50 | 13450.00 | 50.00 | 0.00 | 0.00 | 21.02 | 0.00 | 0.00 | 0.00 | 34.72 | 0.00 | 389.55 | 1137.05 | 0.00 | 0.00 | 0.00 |
| 135+00 | 13500.00 | 50.00 | 0.00 | 0.00 | 15.03 | 0.00 | 0.00 | 0.00 | 33.38 | 0.00 | 389.55 | 1173.76 | 0.00 | 0.00 | 0.00 |
| 135+50 | 13550.00 | 50.00 | 0.00 | 0.00 | 11.32 | 0.00 | 0.00 | 0.00 | 24.40 | 0.00 | 389.55 | 1200.60 | 0.00 | 0.00 | 0.00 |
| 136+00 | 13600.00 | 50.00 | 0.00 | 0.00 | 9.36 | 0.00 | 0.00 | 0.00 | 19.15 | 0.00 | 389.55 | 1221.67 | 0.00 | 0.00 | 0.00 |
| 136+50 | 13650.00 | 50.00 | 0.00 | 0.00 | 5.30 | 0.00 | 0.00 | 0.00 | 13.57 | 0.00 | 389.55 | 1236.60 | 0.00 | 0.00 | 0.00 |
| 137+00 | 13700.00 | 50.00 | 0.00 | 0.00 | 3.68 | 0.00 | 0.00 | 0.00 | 8.31 | 0.00 | 389.55 | 1245.74 | 0.00 | 0.00 | 0.00 |
| 137+50 | 13750.00 | 50.00 | 0.08 | 0.00 | 3.20 | 0.00 | 0.07 | 0.00 | 6.37 | 0.00 | 389.62 | 1252.75 | 0.00 | 0.00 | 0.00 |
| 138+00 | 13800.00 | 50.00 | 2.31 | 0.00 | 1.68 | 0.00 | 2.21 | 0.00 | 4.52 | 0.00 | 391.84 | 1257.72 | 0.00 | 0.00 | 0.00 |
| 138+50 | 13850.00 | 50.00 | 4.03 | 0.00 | 2.15 | 0.00 | 5.87 | 0.00 | 3.55 | 0.00 | 397.71 | 1261.62 | 0.00 | 0.00 | 0.00 |
| 139+00 | 13900.00 | 50.00 | 8.14 | 0.00 | 2.11 | 0.00 | 11.27 | 0.00 | 3.94 | 0.00 | 408.97 | 1265.96 | 0.00 | 0.00 | 0.00 |
| 139+50 | 13950.00 | 50.00 | 4.85 | 0.00 | 5.44 | 0.00 | 12.03 | 0.00 | 6.99 | 0.00 | 421.00 | 1273.65 | 0.00 | 0.00 | 0.00 |
| 140+00 | 14000.00 | 50.00 | 2.39 | 0.00 | 2.40 | 0.00 | 6.70 | 0.00 | 7.26 | 0.00 | 427.71 | 1281.64 | 0.00 | 0.00 | 0.00 |
| 140+50 | 14050.00 | 50.00 | 1.57 | 0.00 | 1.93 | 0.00 | 3.67 | 0.00 | 4.01 | 0.00 | 431.37 | 1286.05 | 0.00 | 0.00 | 0.00 |
| 141+00 | 14100.00 | 50.00 | 0.35 | 0.00 | 3.23 | 0.00 | 1.78 | 0.00 | 4.78 | 0.00 | 433.15 | 1291.30 | 0.00 | 0.00 | 0.00 |
| 141+50 | 14150.00 | 50.00 | 0.26 | 0.00 | 3.92 | 0.00 | 0.56 | 0.00 | 6.62 | 0.00 | 433.72 | 1298.58 | 0.00 | 0.00 | 0.00 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4837
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 8 HA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 142+00 | 14200.00 | 50.00 | 0.23 | 0.00 | 4.23 | 0.00 | 0.45 | 0.00 | 7.55 | 0.00 | 434.17 | 1306.88 | 0.00 | 0.00 | 0.00 |
| 142+50 | 14250.00 | 50.00 | 1.32 | 0.00 | 3.01 | 0.00 | 1.44 | 0.00 | 6.70 | 0.00 | 435.60 | 1314.26 | 0.00 | 0.00 | 0.00 |
| 143+00 | 14300.00 | 50.00 | 2.14 | 0.00 | 3.83 | 0.00 | 3.20 | 0.00 | 6.33 | 0.00 | 438.81 | 1321.23 | 0.00 | 0.00 | 0.00 |
| 143+50 | 14350.00 | 50.00 | 2.43 | 0.00 | 2.81 | 0.00 | 4.23 | 0.00 | 6.15 | 0.00 | 443.04 | 1327.99 | 0.00 | 0.00 | 0.00 |
| 144+00 | 14400.00 | 50.00 | 0.00 | 0.00 | 1.93 | 0.00 | 2.25 | 0.00 | 4.39 | 0.00 | 445.29 | 1332.82 | 0.00 | 0.00 | 0.00 |
| 144+50 | 14450.00 | 50.00 | 0.00 | 0.00 | 11.31 | 0.00 | 0.00 | 0.00 | 12.26 | 0.00 | 445.29 | 1346.30 | 0.00 | 0.00 | 0.00 |
| 145+00 | 14500.00 | 50.00 | 0.00 | 0.00 | 21.78 | 0.00 | 0.00 | 0.00 | 30.64 | 0.00 | 445.29 | 1380.00 | 0.00 | 0.00 | 0.00 |
| 145+50 | 14550.00 | 50.00 | 0.00 | 0.00 | 15.80 | 0.00 | 0.00 | 0.00 | 34.80 | 0.00 | 445.29 | 1418.28 | 0.00 | 0.00 | 0.00 |
| 146+00 | 14600.00 | 50.00 | 0.00 | 0.00 | 13.68 | 0.00 | 0.00 | 0.00 | 27.30 | 0.00 | 445.29 | 1448.31 | 0.00 | 0.00 | 0.00 |
| 146+50 | 14650.00 | 50.00 | 0.00 | 0.00 | 8.57 | 0.00 | 0.00 | 0.00 | 20.60 | 0.00 | 445.29 | 1470.97 | 0.00 | 0.00 | 0.00 |
| 147+00 | 14700.00 | 50.00 | 0.24 | 0.00 | 3.65 | 0.00 | 0.22 | 0.00 | 11.31 | 0.00 | 445.51 | 1483.41 | 0.00 | 0.00 | 0.00 |
| 147+50 | 14750.00 | 50.00 | 2.19 | 0.00 | 1.24 | 0.00 | 2.25 | 0.00 | 4.53 | 0.00 | 447.76 | 1488.40 | 0.00 | 0.00 | 0.00 |
| 148+00 | 14800.00 | 50.00 | 5.71 | 0.00 | 5.48 | 0.00 | 7.31 | 0.00 | 6.22 | 0.00 | 455.08 | 1495.24 | 0.00 | 0.00 | 0.00 |
| 148+50 | 14850.00 | 50.00 | 11.85 | 0.00 | 0.94 | 0.00 | 16.26 | 0.00 | 5.94 | 0.00 | 471.34 | 1501.78 | 0.00 | 0.00 | 0.00 |
| 149+00 | 14900.00 | 50.00 | 13.28 | 0.00 | 0.00 | 0.00 | 23.27 | 0.00 | 0.87 | 0.00 | 494.60 | 1502.74 | 0.00 | 0.00 | 0.00 |
| 149+50 | 14950.00 | 50.00 | 11.48 | 0.00 | 9.42 | 0.00 | 22.93 | 0.00 | 8.72 | 0.00 | 517.53 | 1512.33 | 0.00 | 0.00 | 0.00 |
| 150+00 | 15000.00 | 50.00 | 9.66 | 0.00 | 0.00 | 0.00 | 19.57 | 0.00 | 8.72 | 0.00 | 537.10 | 1521.92 | 0.00 | 0.00 | 0.00 |
| 150+50 | 15050.00 | 50.00 | 10.22 | 0.00 | 0.60 | 0.00 | 18.41 | 0.00 | 0.56 | 0.00 | 555.51 | 1522.54 | 0.00 | 0.00 | 0.00 |
| 151+00 | 15100.00 | 50.00 | 15.54 | 0.00 | 1.92 | 0.00 | 23.85 | 0.00 | 2.33 | 0.00 | 579.36 | 1525.10 | 0.00 | 0.00 | 0.00 |
| 151+50 | 15150.00 | 50.00 | 13.94 | 0.00 | 0.09 | 0.00 | 27.30 | 0.00 | 1.86 | 0.00 | 606.66 | 1527.15 | 0.00 | 0.00 | 0.00 |
| 152+00 | 15200.00 | 50.00 | 12.95 | 0.00 | 0.65 | 0.00 | 24.90 | 0.00 | 0.69 | 0.00 | 631.56 | 1527.90 | 0.00 | 0.00 | 0.00 |
| 152+50 | 15250.00 | 50.00 | 24.13 | 0.00 | 0.00 | 0.00 | 34.33 | 0.00 | 0.60 | 0.00 | 665.89 | 1528.57 | 0.00 | 0.00 | 0.00 |
| 153+00 | 15300.00 | 50.00 | 39.82 | 0.00 | 0.00 | 0.00 | 59.21 | 0.00 | 0.00 | 0.00 | 725.10 | 1528.57 | 0.00 | 0.00 | 0.00 |
| 153+50 | 15350.00 | 50.00 | 21.05 | 0.00 | 0.00 | 0.00 | 56.36 | 0.00 | 0.00 | 0.00 | 781.47 | 1528.57 | 0.00 | 0.00 | 0.00 |
| 154+00 | 15400.00 | 50.00 | 20.12 | 0.00 | 0.00 | 0.00 | 38.12 | 0.00 | 0.00 | 0.00 | 819.59 | 1528.57 | 0.00 | 0.00 | 0.00 |
| 154+50 | 15450.00 | 50.00 | 22.45 | 0.00 | 0.00 | 0.00 | 39.42 | 0.00 | 0.00 | 0.00 | 859.00 | 1528.57 | 0.00 | 0.00 | 0.00 |
| 155+00 | 15500.00 | 50.00 | 21.62 | 0.00 | 0.00 | 0.00 | 40.81 | 0.00 | 0.00 | 0.00 | 899.81 | 1528.57 | 0.00 | 0.00 | 0.00 |
| 155+50 | 15550.00 | 50.00 | 17.53 | 0.00 | 0.00 | 0.00 | 36.25 | 0.00 | 0.00 | 0.00 | 936.06 | 1528.57 | 0.00 | 0.00 | 0.00 |
| 156+00 | 15600.00 | 50.00 | 18.62 | 0.00 | 0.00 | 0.00 | 33.47 | 0.00 | 0.00 | 0.00 | 969.53 | 1528.57 | 0.00 | 0.00 | 0.00 |
| 156+50 | 15650.00 | 50.00 | 19.89 | 0.00 | 0.00 | 0.00 | 35.66 | 0.00 | 0.00 | 0.00 | 1005.19 | 1528.57 | 0.00 | 0.00 | 0.00 |
| 157+00 | 15700.00 | 50.00 | 25.15 | 0.00 | 0.00 | 0.00 | 41.70 | 0.00 | 0.00 | 0.00 | 1046.89 | 1528.57 | 0.00 | 0.00 | 0.00 |
| 157+50 | 15750.00 | 50.00 | 30.10 | 0.00 | 0.00 | 0.00 | 51.16 | 0.00 | 0.00 | 0.00 | 1098.05 | 1528.57 | 0.00 | 0.00 | 0.00 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4838
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 8 HA**

| STATION | Real Station | Distance | AREA (SF) | | | | Incremental Vol (CY) (Unadjusted) | | | | Cumulative Vol (CY) | | | | Mass |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut | Salvaged/ Unusable Pavement Material | Fill | EBS | Cut Note 1 | Salvaged/ Unusable Pavement Material Note 2 | Fill Note 3 | EBS | Cut 1.0 | Expanded Fill 1.1 | Expanded EBS Backfill 1.3 Note 4 | Reduced EBS In Fill 0.8 Note 5 | Ordinate Note 6 |
| 158+00 | 15800.00 | 50.00 | 34.99 | 0.00 | 0.00 | 0.00 | 60.27 | 0.00 | 0.00 | 0.00 | 1158.32 | 1528.57 | 0.00 | 0.00 | 0.00 |
| 158+50 | 15850.00 | 50.00 | 38.41 | 0.00 | 6.34 | 0.00 | 67.96 | 0.00 | 5.87 | 0.00 | 1226.28 | 1535.02 | 0.00 | 0.00 | 0.00 |
| 159+00 | 15900.00 | 50.00 | 57.70 | 0.00 | 0.00 | 0.00 | 88.99 | 0.00 | 5.87 | 0.00 | 1315.27 | 1541.48 | 0.00 | 0.00 | 0.00 |
| 159+50 | 15950.00 | 50.00 | 50.46 | 0.00 | 0.00 | 0.00 | 100.15 | 0.00 | 0.00 | 0.00 | 1415.42 | 1541.48 | 0.00 | 0.00 | 0.00 |
| 160+00 | 16000.00 | 50.00 | 47.99 | 0.00 | 0.00 | 0.00 | 91.16 | 0.00 | 0.00 | 0.00 | 1506.58 | 1541.48 | 0.00 | 0.00 | 0.00 |
| 160+50 | 16050.00 | 50.00 | 52.80 | 0.00 | 0.00 | 0.00 | 93.32 | 0.00 | 0.00 | 0.00 | 1599.90 | 1541.48 | 0.00 | 0.00 | 0.00 |
| 161+00 | 16100.00 | 50.00 | 61.92 | 0.00 | 0.00 | 0.00 | 106.22 | 0.00 | 0.00 | 0.00 | 1706.12 | 1541.48 | 0.00 | 0.00 | 0.00 |
| 161+50 | 16150.00 | 50.00 | 65.27 | 0.00 | 0.00 | 0.00 | 117.77 | 0.00 | 0.00 | 0.00 | 1823.89 | 1541.48 | 0.00 | 0.00 | 0.00 |
| 162+00 | 16200.00 | 50.00 | 55.24 | 0.00 | 0.00 | 0.00 | 111.58 | 0.00 | 0.00 | 0.00 | 1935.47 | 1541.48 | 0.00 | 0.00 | 0.00 |
| 162+50 | 16250.00 | 50.00 | 54.75 | 0.00 | 0.00 | 0.00 | 101.84 | 0.00 | 0.00 | 0.00 | 2037.32 | 1541.48 | 0.00 | 0.00 | 0.00 |
| 163+00 | 16300.00 | 50.00 | 53.22 | 0.00 | 0.00 | 0.00 | 99.97 | 0.00 | 0.00 | 0.00 | 2137.29 | 1541.48 | 0.00 | 0.00 | 0.00 |
| 163+50 | 16350.00 | 50.00 | 44.10 | 0.00 | 0.00 | 0.00 | 90.11 | 0.00 | 0.00 | 0.00 | 2227.40 | 1541.48 | 0.00 | 0.00 | 0.00 |
| 164+00 | 16400.00 | 50.00 | 40.58 | 0.00 | 0.00 | 0.00 | 78.41 | 0.00 | 0.00 | 0.00 | 2305.81 | 1541.48 | 0.00 | 0.00 | 0.00 |
| 164+50 | 16450.00 | 50.00 | 30.66 | 0.00 | 30.99 | 0.00 | 65.96 | 0.00 | 28.69 | 0.00 | 2371.77 | 1573.04 | 0.00 | 0.00 | 0.00 |
| 165+00 | 16500.00 | 50.00 | 28.17 | 0.00 | 0.00 | 0.00 | 54.47 | 0.00 | 28.69 | 0.00 | 2426.24 | 1604.61 | 0.00 | 0.00 | 0.00 |
| 165+50 | 16550.00 | 50.00 | 22.90 | 0.00 | 0.00 | 0.00 | 47.29 | 0.00 | 0.00 | 0.00 | 2473.53 | 1604.61 | 0.00 | 0.00 | 0.00 |
| 166+00 | 16600.00 | 50.00 | 21.55 | 0.00 | 0.00 | 0.00 | 41.16 | 0.00 | 0.00 | 0.00 | 2514.69 | 1604.61 | 0.00 | 0.00 | 0.00 |
| 166+50 | 16650.00 | 50.00 | 18.74 | 0.00 | 0.00 | 0.00 | 37.31 | 0.00 | 0.00 | 0.00 | 2551.99 | 1604.61 | 0.00 | 0.00 | 0.00 |
| 167+00 | 16700.00 | 50.00 | 14.87 | 0.00 | 0.01 | 0.00 | 31.12 | 0.00 | 0.01 | 0.00 | 2583.11 | 1604.62 | 0.00 | 0.00 | 0.00 |
| 167+50 | 16750.00 | 50.00 | 11.15 | 0.00 | 0.45 | 0.00 | 24.09 | 0.00 | 0.43 | 0.00 | 2607.21 | 1605.09 | 0.00 | 0.00 | 0.00 |
| 168+00 | 16800.00 | 50.00 | 6.01 | 0.00 | 0.38 | 0.00 | 15.89 | 0.00 | 0.77 | 0.00 | 2623.09 | 1605.93 | 0.00 | 0.00 | 0.00 |
| 168+50 | 16850.00 | 50.00 | 6.69 | 0.00 | 0.37 | 0.00 | 11.76 | 0.00 | 0.69 | 0.00 | 2634.85 | 1606.70 | 0.00 | 0.00 | 0.00 |
| 169+00 | 16900.00 | 50.00 | 3.79 | 0.00 | 1.01 | 0.00 | 9.70 | 0.00 | 1.28 | 0.00 | 2644.56 | 1608.10 | 0.00 | 0.00 | 0.00 |
| 169+50 | 16950.00 | 50.00 | 0.64 | 0.00 | 6.12 | 0.00 | 4.10 | 0.00 | 6.60 | 0.00 | 2648.66 | 1615.36 | 0.00 | 0.00 | 0.00 |
| 170+00 | 17000.00 | 50.00 | 0.00 | 0.00 | 6.95 | 0.00 | 0.59 | 0.00 | 12.10 | 0.00 | 2649.25 | 1628.68 | 0.00 | 0.00 | 0.00 |
| 170+50 | 17050.00 | 50.00 | 0.69 | 0.00 | 7.29 | 0.00 | 0.64 | 0.00 | 13.19 | 0.00 | 2649.89 | 1643.18 | 0.00 | 0.00 | 0.00 |
| 171+00 | 17100.00 | 50.00 | 2.51 | 0.00 | 5.66 | 0.00 | 2.96 | 0.00 | 11.99 | 0.00 | 2652.85 | 1656.37 | 0.00 | 0.00 | 0.00 |
| 171+50 | 17150.00 | 50.00 | 3.20 | 0.00 | 5.71 | 0.00 | 5.29 | 0.00 | 10.53 | 0.00 | 2658.14 | 1667.95 | 0.00 | 0.00 | 0.00 |
| 172+00 | 17200.00 | 50.00 | 3.88 | 0.00 | 5.55 | 0.00 | 6.56 | 0.00 | 10.43 | 0.00 | 2664.70 | 1679.42 | 0.00 | 0.00 | 0.00 |
| 172+50 | 17250.00 | 50.00 | 6.12 | 0.00 | 4.31 | 0.00 | 9.26 | 0.00 | 9.13 | 0.00 | 2673.96 | 1689.46 | 0.00 | 0.00 | 0.00 |
| 173+00 | 17300.00 | 50.00 | 5.20 | 0.00 | 4.39 | 0.00 | 10.48 | 0.00 | 8.06 | 0.00 | 2684.44 | 1698.32 | 0.00 | 0.00 | 0.00 |

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4839
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 8 HA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 173+50 | 17350.00 | 50.00 | 18.24 | 0.00 | 1.46 | 0.00 | 21.70 | 0.00 | 5.42 | 0.00 | 2706.14 | 1704.28 | 0.00 | 0.00 | 0.00 |
| 174+00 | 17400.00 | 50.00 | 186.94 | 0.00 | 0.47 | 0.00 | 189.98 | 0.00 | 1.79 | 0.00 | 2896.12 | 1706.25 | 0.00 | 0.00 | 0.00 |
| 174+50 | 17450.00 | 50.00 | 20.63 | 0.00 | 0.80 | 0.00 | 192.19 | 0.00 | 1.18 | 0.00 | 3088.32 | 1707.54 | 0.00 | 0.00 | 0.00 |
| 175+00 | 17500.00 | 50.00 | 10.35 | 0.00 | 0.90 | 0.00 | 28.69 | 0.00 | 1.57 | 0.00 | 3117.00 | 1709.27 | 0.00 | 0.00 | 0.00 |
| 175+50 | 17550.00 | 50.00 | 5.24 | 0.00 | 24.82 | 0.00 | 14.44 | 0.00 | 23.81 | 0.00 | 3131.44 | 1735.47 | 0.00 | 0.00 | 0.00 |
| 176+00 | 17600.00 | 50.00 | 5.92 | 0.00 | 49.08 | 0.00 | 10.33 | 0.00 | 68.43 | 0.00 | 3141.77 | 1810.74 | 0.00 | 0.00 | 0.00 |
| 176+50 | 17650.00 | 50.00 | 12.08 | 0.00 | 105.54 | 0.00 | 16.67 | 0.00 | 143.17 | 0.00 | 3158.44 | 1968.22 | 0.00 | 0.00 | 0.00 |
| 177+00 | 17700.00 | 50.00 | 3.34 | 0.00 | 81.21 | 0.00 | 14.28 | 0.00 | 172.92 | 0.00 | 3172.72 | 2158.43 | 0.00 | 0.00 | 0.00 |
| 177+50 | 17750.00 | 50.00 | 2.61 | 0.00 | 171.00 | 0.00 | 5.51 | 0.00 | 233.53 | 0.00 | 3178.22 | 2415.31 | 0.00 | 0.00 | 0.00 |
| 178+00 | 17800.00 | 50.00 | 3.86 | 0.00 | 53.92 | 0.00 | 5.99 | 0.00 | 208.26 | 0.00 | 3184.22 | 2644.39 | 0.00 | 0.00 | 0.00 |
| 178+50 | 17850.00 | 50.00 | 0.99 | 0.00 | 56.93 | 0.00 | 4.49 | 0.00 | 102.64 | 0.00 | 3188.71 | 2757.30 | 0.00 | 0.00 | 0.00 |
| 179+00 | 17900.00 | 50.00 | 1.25 | 0.00 | 129.75 | 0.00 | 2.07 | 0.00 | 172.85 | 0.00 | 3190.78 | 2947.43 | 0.00 | 0.00 | 0.00 |
| 179+50 | 17950.00 | 50.00 | 0.08 | 0.00 | 74.45 | 0.00 | 1.23 | 0.00 | 189.07 | 0.00 | 3192.01 | 3155.41 | 0.00 | 0.00 | 0.00 |
| 180+00 | 18000.00 | 50.00 | 492.57 | 0.00 | 0.56 | 0.00 | 456.16 | 0.00 | 69.45 | 0.00 | 3648.17 | 3231.81 | 0.00 | 0.00 | 0.00 |
| 180+50 | 18050.00 | 50.00 | 1836.80 | 0.00 | 3.94 | 0.00 | 2156.82 | 0.00 | 4.17 | 0.00 | 5804.99 | 3236.40 | 0.00 | 0.00 | 0.00 |
| 181+00 | 18100.00 | 50.00 | 2051.30 | 0.00 | 12.49 | 0.00 | 3600.09 | 0.00 | 15.21 | 0.00 | 9405.09 | 3253.13 | 0.00 | 0.00 | 0.00 |
| 181+50 | 18150.00 | 50.00 | 407.36 | 0.00 | 0.00 | 0.00 | 2276.54 | 0.00 | 11.56 | 0.00 | 11681.62 | 3265.85 | 0.00 | 0.00 | 0.00 |
| 182+00 | 18200.00 | 50.00 | 205.34 | 0.00 | 9.17 | 0.00 | 567.31 | 0.00 | 8.49 | 0.00 | 12248.94 | 3275.19 | 0.00 | 0.00 | 0.00 |
| 182+50 | 18250.00 | 50.00 | 236.83 | 0.00 | 6.18 | 0.00 | 409.42 | 0.00 | 14.21 | 0.00 | 12658.35 | 3290.83 | 0.00 | 0.00 | 0.00 |
| 183+00 | 18300.00 | 50.00 | 60.36 | 0.00 | 9.06 | 0.00 | 275.18 | 0.00 | 14.11 | 0.00 | 12933.53 | 3306.35 | 0.00 | 0.00 | 0.00 |
| 183+50 | 18350.00 | 50.00 | 0.12 | 0.00 | 6.26 | 0.00 | 56.00 | 0.00 | 14.19 | 0.00 | 12989.53 | 3321.95 | 0.00 | 0.00 | 0.00 |
| 184+00 | 18400.00 | 50.00 | 0.11 | 0.00 | 13.97 | 0.00 | 0.21 | 0.00 | 18.73 | 0.00 | 12989.74 | 3342.56 | 0.00 | 0.00 | 0.00 |
| 184+50 | 18450.00 | 50.00 | 25.64 | 0.00 | 8.14 | 0.00 | 23.84 | 0.00 | 20.47 | 0.00 | 13013.59 | 3365.08 | 0.00 | 0.00 | 0.00 |
| 185+00 | 18500.00 | 50.00 | 25.18 | 0.00 | 12.89 | 0.00 | 47.06 | 0.00 | 19.47 | 0.00 | 13060.64 | 3386.50 | 0.00 | 0.00 | 0.00 |
| 185+50 | 18550.00 | 50.00 | 21.13 | 0.00 | 3.84 | 0.00 | 42.88 | 0.00 | 15.49 | 0.00 | 13103.52 | 3403.54 | 0.00 | 0.00 | 0.00 |
| 186+00 | 18600.00 | 50.00 | 35.89 | 0.00 | 1.56 | 0.00 | 52.80 | 0.00 | 5.00 | 0.00 | 13156.32 | 3409.04 | 0.00 | 0.00 | 0.00 |
| 186+50 | 18650.00 | 50.00 | 101.62 | 0.00 | 0.85 | 0.00 | 127.32 | 0.00 | 2.23 | 0.00 | 13283.64 | 3411.49 | 0.00 | 0.00 | 0.00 |
| 187+00 | 18700.00 | 50.00 | 96.62 | 0.00 | 4.30 | 0.00 | 183.56 | 0.00 | 4.77 | 0.00 | 13467.20 | 3416.74 | 0.00 | 0.00 | 0.00 |
| 187+50 | 18750.00 | 50.00 | 87.56 | 0.00 | 8.59 | 0.00 | 170.54 | 0.00 | 11.94 | 0.00 | 13637.73 | 3429.86 | 0.00 | 0.00 | 0.00 |
| 188+00 | 18800.00 | 50.00 | 90.12 | 0.00 | 11.15 | 0.00 | 164.52 | 0.00 | 18.28 | 0.00 | 13802.25 | 3449.97 | 0.00 | 0.00 | 0.00 |
| 188+50 | 18850.00 | 50.00 | 83.89 | 0.00 | 11.90 | 0.00 | 161.12 | 0.00 | 21.34 | 0.00 | 13963.37 | 3473.45 | 0.00 | 0.00 | 0.00 |

1

3

Addendum No. 03
ID 1060-33-81
Revised Sheet 4840
September 14, 2015

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

(CONTINUED ON NEXT SHEET)

(CONTINUED)

**Division 8 HA**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.0 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.3 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.8 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 189+00 | 18900.00 | 50.00 | 77.96 | 0.00 | 7.02 | 0.00 | 149.86 | 0.00 | 17.52 | 0.00 | 14113.23 | 3492.72 | 0.00 | 0.00 | 0.00 |
| 189+50 | 18950.00 | 50.00 | 36.78 | 0.00 | 9.48 | 0.00 | 106.24 | 0.00 | 15.28 | 0.00 | 14219.47 | 3509.52 | 0.00 | 0.00 | 0.00 |
| 190+00 | 19000.00 | 50.00 | 17.83 | 0.00 | 12.39 | 0.00 | 50.56 | 0.00 | 20.25 | 0.00 | 14270.04 | 3531.80 | 0.00 | 0.00 | 0.00 |
| 190+50 | 19050.00 | 50.00 | 9.20 | 0.00 | 9.56 | 0.00 | 25.03 | 0.00 | 20.32 | 0.00 | 14295.07 | 3554.15 | 0.00 | 0.00 | 0.00 |
| 191+00 | 19100.00 | 50.00 | 2.20 | 0.00 | 3.77 | 0.00 | 10.56 | 0.00 | 12.34 | 0.00 | 14305.62 | 3567.73 | 0.00 | 0.00 | 0.00 |
| 191+50 | 19150.00 | 50.00 | 1.26 | 0.00 | 1.54 | 0.00 | 3.20 | 0.00 | 4.92 | 0.00 | 14308.83 | 3573.14 | 0.00 | 0.00 | 0.00 |
| 192+00 | 19200.00 | 50.00 | 6.88 | 0.00 | 0.59 | 0.00 | 7.54 | 0.00 | 1.97 | 0.00 | 14316.36 | 3575.31 | 0.00 | 0.00 | 0.00 |
| 192+50 | 19250.00 | 50.00 | 6.77 | 0.00 | 0.33 | 0.00 | 12.64 | 0.00 | 0.85 | 0.00 | 14329.00 | 3576.25 | 0.00 | 0.00 | 0.00 |
| 193+00 | 19300.00 | 50.00 | 12.31 | 0.00 | 0.00 | 0.00 | 17.67 | 0.00 | 0.31 | 0.00 | 14346.67 | 3576.58 | 0.00 | 0.00 | 0.00 |
| 193+01 BK | 19301.32 | 1.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 | 0.00 | 0.00 | 0.00 | 14346.97 | 3576.58 | 0.00 | 0.00 | 0.00 |
| | | | | | Column totals | | 14346.97 | 0.00 | 3251.44 | 0.00 | | | | | |

1

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4841
September 14, 2015

**Division 9 USH 45 NB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 304+00 AH | 30400.00 | 0.00 | 45.42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 304+50 | 30450.00 | 50.00 | 47.51 | 0.00 | 0.00 | 0.00 | 86.05 | 0.00 | 0.00 | 0.00 | 86.05 | 0.00 | 0.00 | 0.00 | 86.05 |
| 305+00 | 30500.00 | 50.00 | 47.90 | 0.00 | 0.00 | 0.00 | 88.34 | 0.00 | 0.00 | 0.00 | 174.39 | 0.00 | 0.00 | 0.00 | 174.39 |
| 305+50 | 30550.00 | 50.00 | 47.81 | 0.00 | 0.00 | 0.00 | 88.62 | 0.00 | 0.00 | 0.00 | 263.01 | 0.00 | 0.00 | 0.00 | 263.01 |
| 306+00 | 30600.00 | 50.00 | 47.73 | 0.00 | 0.00 | 0.00 | 88.46 | 0.00 | 0.00 | 0.00 | 351.47 | 0.00 | 0.00 | 0.00 | 351.47 |
| 306+50 | 30650.00 | 50.00 | 47.66 | 0.00 | 0.00 | 0.00 | 88.32 | 0.00 | 0.00 | 0.00 | 439.80 | 0.00 | 0.00 | 0.00 | 439.80 |
| 307+00 | 30700.00 | 50.00 | 47.66 | 0.00 | 0.00 | 0.00 | 88.26 | 0.00 | 0.00 | 0.00 | 528.06 | 0.00 | 0.00 | 0.00 | 528.06 |
| 307+32 | 30732.00 | 32.00 | 48.10 | 0.00 | 0.00 | 0.00 | 56.75 | 0.00 | 0.00 | 0.00 | 584.80 | 0.00 | 0.00 | 0.00 | 584.80 |
| 307+32 | 30732.00 | 0.00 | 82.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 584.80 | 0.00 | 0.00 | 0.00 | 584.80 |
| 307+50 | 30750.00 | 18.00 | 83.38 | 0.00 | 0.00 | 0.00 | 55.14 | 0.00 | 0.00 | 0.00 | 639.95 | 0.00 | 0.00 | 0.00 | 639.95 |
| 308+00 | 30800.00 | 50.00 | 88.09 | 0.00 | 0.00 | 0.00 | 158.77 | 0.00 | 0.00 | 0.00 | 798.71 | 0.00 | 0.00 | 0.00 | 798.71 |
| 308+50 | 30850.00 | 50.00 | 89.95 | 0.00 | 0.00 | 0.00 | 164.85 | 0.00 | 0.00 | 0.00 | 963.57 | 0.00 | 0.00 | 0.00 | 963.57 |
| 309+00 | 30900.00 | 50.00 | 134.04 | 0.00 | 0.00 | 0.00 | 207.40 | 0.00 | 0.00 | 0.00 | 1170.96 | 0.00 | 0.00 | 0.00 | 1170.96 |
| 309+00 | 30900.00 | 0.00 | 56.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1170.96 | 0.00 | 0.00 | 0.00 | 1170.96 |
| 309+50 | 30950.00 | 50.00 | 63.26 | 0.00 | 0.00 | 0.00 | 110.96 | 0.00 | 0.00 | 0.00 | 1281.93 | 0.00 | 0.00 | 0.00 | 1281.93 |
| 310+00 | 31000.00 | 50.00 | 75.65 | 0.00 | 0.00 | 0.00 | 128.62 | 0.00 | 0.00 | 0.00 | 1410.55 | 0.00 | 0.00 | 0.00 | 1410.55 |
| 310+50 | 31050.00 | 50.00 | 93.10 | 0.00 | 0.00 | 0.00 | 156.25 | 0.00 | 0.00 | 0.00 | 1566.80 | 0.00 | 0.00 | 0.00 | 1566.80 |
| 311+00 | 31100.00 | 50.00 | 102.44 | 0.00 | 0.00 | 0.00 | 181.06 | 0.00 | 0.00 | 0.00 | 1747.85 | 0.00 | 0.00 | 0.00 | 1747.85 |
| 311+50 | 31150.00 | 50.00 | 93.08 | 0.00 | 0.00 | 0.00 | 181.04 | 0.00 | 0.00 | 0.00 | 1928.89 | 0.00 | 0.00 | 0.00 | 1928.89 |
| 311+70 BK | 31169.97 | 19.97 | 92.10 | 0.00 | 0.00 | 0.00 | 68.48 | 0.00 | 0.00 | 0.00 | 1997.37 | 0.00 | 0.00 | 0.00 | 1997.37 |
| | | | | | Column totals | | 1997.37 | 0.00 | 0.00 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4842
September 14, 2015

9

9

PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | EARTHWORK | SHEET: 4842 | E

**Division 9 USH 45 SB**

| STATION | Real Station | Distance | AREA (SF) Cut | AREA (SF) Salvaged/ Unusable Pavement Material | AREA (SF) Fill | AREA (SF) EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Incremental Vol (CY) (Unadjusted) Salvaged/ Unusable Pavement Material Note 2 | Incremental Vol (CY) (Unadjusted) Fill Note 3 | Incremental Vol (CY) (Unadjusted) EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Cumulative Vol (CY) Expanded Fill 1.1 | Cumulative Vol (CY) Expanded EBS Backfill 1.30 Note 4 | Cumulative Vol (CY) Reduced EBS In Fill 0.80 Note 5 | Mass Ordinate Note 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 304+00 AH | 30400.00 | 0.00 | 0.00 | 0.00 | 15.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 304+45 | 30445.00 | 45.00 | 0.53 | 0.00 | 1.60 | 0.00 | 0.44 | 0.00 | 14.21 | 0.00 | 0.44 | 15.63 | 0.00 | 0.00 | -15.19 |
| 304+45 | 30445.00 | 0.00 | 39.46 | 0.00 | 0.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.44 | 15.63 | 0.00 | 0.00 | -15.19 |
| 304+50 | 30450.00 | 5.00 | 40.01 | 0.00 | 0.63 | 0.00 | 7.36 | 0.00 | 0.13 | 0.00 | 7.80 | 15.77 | 0.00 | 0.00 | -7.97 |
| 305+00 | 30500.00 | 50.00 | 41.10 | 0.00 | 0.39 | 0.00 | 75.10 | 0.00 | 0.94 | 0.00 | 82.90 | 16.81 | 0.00 | 0.00 | 66.09 |
| 305+50 | 30550.00 | 50.00 | 40.74 | 0.00 | 0.50 | 0.00 | 75.78 | 0.00 | 0.82 | 0.00 | 158.68 | 17.72 | 0.00 | 0.00 | 140.96 |
| 306+00 | 30600.00 | 50.00 | 39.96 | 0.00 | 0.62 | 0.00 | 74.72 | 0.00 | 1.04 | 0.00 | 233.40 | 18.86 | 0.00 | 0.00 | 214.54 |
| 306+50 | 30650.00 | 50.00 | 38.95 | 0.00 | 0.67 | 0.00 | 73.06 | 0.00 | 1.19 | 0.00 | 306.47 | 20.17 | 0.00 | 0.00 | 286.29 |
| 307+00 | 30700.00 | 50.00 | 37.96 | 0.00 | 0.63 | 0.00 | 71.21 | 0.00 | 1.20 | 0.00 | 377.68 | 21.50 | 0.00 | 0.00 | 356.18 |
| 307+50 | 30750.00 | 50.00 | 39.85 | 0.00 | 0.30 | 0.00 | 72.05 | 0.00 | 0.86 | 0.00 | 449.73 | 22.45 | 0.00 | 0.00 | 427.28 |
| 308+00 | 30800.00 | 50.00 | 42.72 | 0.00 | 0.00 | 0.00 | 76.45 | 0.00 | 0.28 | 0.00 | 526.18 | 22.75 | 0.00 | 0.00 | 503.43 |
| 308+00 | 30800.00 | 0.00 | 75.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 526.18 | 22.75 | 0.00 | 0.00 | 503.43 |
| 308+50 | 30850.00 | 50.00 | 80.42 | 0.00 | 0.00 | 0.00 | 144.63 | 0.00 | 0.00 | 0.00 | 670.81 | 22.75 | 0.00 | 0.00 | 648.06 |
| 309+00 | 30900.00 | 50.00 | 84.50 | 0.00 | 0.00 | 0.00 | 152.70 | 0.00 | 0.00 | 0.00 | 823.51 | 22.75 | 0.00 | 0.00 | 800.76 |
| 309+40 | 30940.00 | 40.00 | 85.45 | 0.00 | 0.00 | 0.00 | 125.89 | 0.00 | 0.00 | 0.00 | 949.40 | 22.75 | 0.00 | 0.00 | 926.65 |
| 309+40 | 30940.00 | 0.00 | 28.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 949.40 | 22.75 | 0.00 | 0.00 | 926.65 |
| 309+50 | 30950.00 | 10.00 | 28.93 | 0.00 | 0.00 | 0.00 | 10.70 | 0.00 | 0.00 | 0.00 | 960.10 | 22.75 | 0.00 | 0.00 | 937.35 |
| 310+00 | 31000.00 | 50.00 | 28.54 | 0.00 | 0.00 | 0.00 | 53.21 | 0.00 | 0.00 | 0.00 | 1013.32 | 22.75 | 0.00 | 0.00 | 990.57 |
| 310+50 | 31050.00 | 50.00 | 26.06 | 0.00 | 0.08 | 0.00 | 50.56 | 0.00 | 0.07 | 0.00 | 1063.87 | 22.83 | 0.00 | 0.00 | 1041.04 |
| 311+00 | 31100.00 | 50.00 | 24.90 | 0.00 | 0.49 | 0.00 | 47.19 | 0.00 | 0.53 | 0.00 | 1111.06 | 23.41 | 0.00 | 0.00 | 1087.64 |
| 311+20 BK | 31120.00 | 20.00 | 27.70 | 0.00 | 1.40 | 0.00 | 19.48 | 0.00 | 0.70 | 0.00 | 1130.54 | 24.18 | 0.00 | 0.00 | 1106.36 |
| | | | | | | Column totals | 1130.54 | 0.00 | 21.99 | 0.00 | | | | | |

3

| Notes: | |
|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections nor is it shown in these sheets. Refer to Summary Table for this roadway's quantity. |
| 3 - Fill | Does not include Unusable Pavement Exc volume |
| 4 - Expanded EBS | Will be backfilled with Borrow |
| 5 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill |
| 6 - Mass Ordinate | If EBS to be backfilled with Cut or Borrow: [(Cut + EBS) - ((Fill) - (Reduced EBS in Fill)) * Fill Factor)] |

Addendum No. 03
ID 1060-33-81
Revised Sheet 4843
September 14, 2015

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0142 | 502.0100 Concrete Masonry Bridges **P** | 11,618.000 CY | | . | | . |
| 0143 | 502.3100 Expansion Device (structure) 0001. B-40-861 | LUMP | LUMP | | | . |
| 0144 | 502.3100 Expansion Device (structure) 0002. B-40-869 | LUMP | LUMP | | | . |
| 0145 | 502.3100 Expansion Device (structure) 0003. B-40-870 | LUMP | LUMP | | | . |
| 0146 | 502.3200 Protective Surface Treatment **P** | 95,242.000 SY | | . | | . |
| 0147 | 502.5005 Masonry Anchors Type L No. 5 Bars | 98.000 EACH | | . | | . |
| 0148 | 502.5010 Masonry Anchors Type L No. 6 Bars | 28.000 EACH | | . | | . |
| 0149 | 502.6102 Masonry Anchors Type S 1/2-Inch | 35.000 EACH | | . | | . |
| 0150 | 503.0137 Prestressed Girder Type I 36W-Inch **P** | 3,091.000 LF | | . | | . |
| 0151 | 503.0146 Prestressed Girder Type I 45W-Inch **P** | 4,182.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0152 | 503.0155 Prestressed Girder Type I 54W-Inch **P** | 28,673.000 LF | | . | | . |
| 0153 | 503.0172 Prestressed Girder Type I 72W-Inch **P** | 1,313.000 LF | | . | | . |
| 0154 | 504.0500 Concrete Masonry Retaining Walls **P** | 11,126.000 CY | | . | | . |
| 0155 | 505.0405 Bar Steel Reinforcement HS Bridges | 310,651.000 LB | | . | | . |
| 0156 | 505.0415 Bar Steel Reinforcement HS Retaining Walls | 180,065.000 LB | | . | | . |
| 0157 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 4,730,556 LB | | . | | . |
| 0158 | 505.0615 Bar Steel Reinforcement HS Coated Retaining Walls | 1,211,960 LB | | . | | . |
| 0159 | 505.0800.S Bar Steel Reinforcement HS Stainless Structures | 4,029,390 LB | | . | | . |
| 0160 | 505.0905 Bar Couplers No. 5 | 18.000 EACH | | . | | . |
| 0161 | 505.0906 Bar Couplers No. 6 | 1,032.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0202 | 511.1200 Temporary Shoring (structure) 0016. B-40-851 | 1,890.000 SF | | . | | . |
| 0203 | 511.1200 Temporary Shoring (structure) 0017. B-40-873 | 200.000 SF | | . | | . |
| 0204 | 511.1200 Temporary Shoring (structure) 0018. B-40-874 | 3,800.000 SF | | . | | . |
| 0205 | 511.1200 Temporary Shoring (structure) 0019. R-40-630 | 1,825.000 SF | | . | | . |
| 0206 | 511.1200 Temporary Shoring (structure) 0020. R-40-524 | 640.000 SF | | . | | . |
| 0207 | 511.1200 Temporary Shoring (structure) 0021. R-40-467 | 1,425.000 SF | | . | | . |
| 0208 | 511.1200 Temporary Shoring (structure) 0022. R-40-468 | 440.000 SF | | . | | . |
| 0209 | 511.1200 Temporary Shoring (structure) 0023. R-40-522 | 1,340.000 SF | | . | | . |
| 0210 | 511.1300 Temporary Shoring (location) 0001. 217NS+00 To 228NS+57 | 8,114.000 SF | | . | | . |
| 0211 | 511.1300 Temporary Shoring (location) 0002. 275NS+26 To 275NS+51 | 330.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0212 | 511.1300 Temporary Shoring (location) 0003. 230NS+97 To 238NS+00 | 5,459.000 SF | | . | | . |
| 0213 | 511.1300 Temporary Shoring (location) 0004. 93EW+60 To 99EW+20 | 2,792.000 SF | | . | | . |
| 0214 | 511.1300 Temporary Shoring (location) 0005. 102EW+37 To 107EW+30 | 2,034.000 SF | | . | | . |
| 0215 | 511.1300 Temporary Shoring (location) 0006. 110EW+20 To 111EW+25 | 478.000 SF | | . | | . |
| 0216 | 511.1300 Temporary Shoring (location) 0007. 142EW+68 To 143EW+18 | 1,300.000 SF | | . | | . |
| 0217 | 511.1300 Temporary Shoring (location) 0008. 203EW+84 To 204EW+03 | 540.000 SF | | . | | . |
| 0218 | 511.1300 Temporary Shoring (location) 0009. 16EWP+00 To 16EWP+84 | 348.000 SF | | . | | . |
| 0219 | 511.1300 Temporary Shoring (location) 0010. 169EW+85 To 180EW+35 | 11,490.000 SF | | . | | . |
| 0220 | 511.1300 Temporary Shoring (location) 0011. 13ENA+96 To 14ENA+80 | 369.000 SF | | . | | . |
| 0221 | 511.1300 Temporary Shoring (location) 0012. 15ENA+96 To 16ENA+61 | 330.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0692 | 649.0400 Temporary Pavement Marking Removable Tape 4-Inch | 41,245.000 LF | | . | | . |
| 0693 | 649.0701 Temporary Pavement Marking 8-Inch | 5,155.000 LF | | . | | . |
| 0694 | 649.0801 Temporary Pavement Marking Removable Tape 8-Inch | 4,660.000 LF | | . | | . |
| 0695 | 649.2100 Temporary Raised Pavement Markers | 2,592.000 EACH | | . | | . |
| 0696 | 652.0110 Conduit Rigid Metallic 1-Inch | 76.000 LF | | . | | . |
| 0697 | 652.0125 Conduit Rigid Metallic 2-Inch | 1,265.000 LF | | . | | . |
| 0698 | 652.0210 Conduit Rigid Nonmetallic Schedule 40 1-Inch | 8.000 LF | | . | | . |
| 0699 | 652.0225 Conduit Rigid Nonmetallic Schedule 40 2-Inch | 63,496.000 LF | | . | | . |
| 0700 | 652.0235 Conduit Rigid Nonmetallic Schedule 40 3-Inch | 50,158.000 LF | | . | | . |
| 0701 | 652.0240 Conduit Rigid Nonmetallic Schedule 40 4-Inch | 4.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0702 | 652.0325 Conduit Rigid Nonmetallic Schedule 80 2-Inch | 123.000 LF | | . | | . |
| 0703 | 652.0615 Conduit Special 3-Inch | 1,755.000 LF | | . | | . |
| 0704 | 652.0625 Conduit Special 4-Inch | 525.000 LF | | . | | . |
| 0705 | 652.0700.S Install Conduit into Existing Item | 34.000 EACH | | . | | . |
| 0706 | 652.0800 Conduit Loop Detector | 3,340.000 LF | | . | | . |
| 0707 | 653.0105 Pull Boxes Steel 12x24-Inch | 4.000 EACH | | . | | . |
| 0708 | 653.0135 Pull Boxes Steel 24x36-Inch | 63.000 EACH | | . | | . |
| 0709 | 653.0140 Pull Boxes Steel 24x42-Inch | 183.000 EACH | | . | | . |
| 0710 | 653.0220 Junction Boxes 18x6x6-Inch | 40.000 EACH | | . | | . |
| 0711 | 653.0222 Junction Boxes 18x12x6-Inch | 95.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0722 | 655.0260 Cable Traffic Signal 12-14 AWG | 1,082.000 LF | | . | | . |
| 0723 | 655.0310 Cable Type UF 2-12 AWG | 2,230.000 LF | | . | | . |
| 0724 | 655.0510 Electrical Wire Traffic Signals 12 AWG | 43,704.000 LF | | . | | . |
| 0725 | 655.0610 Electrical Wire Lighting 12 AWG | 106,313.000 LF | | . | | . |
| 0726 | 655.0615 Electrical Wire Lighting 10 AWG | 22,284.000 LF | | . | | . |
| 0727 | 655.0620 Electrical Wire Lighting 8 AWG | 2,977.000 LF | | . | | . |
| 0728 | 655.0625 Electrical Wire Lighting 6 AWG | 292,924.000 LF | | . | | . |
| 0729 | 655.0630 Electrical Wire Lighting 4 AWG | 20,473.000 LF | | . | | . |
| 0730 | 655.0635 Electrical Wire Lighting 2 AWG | 10,153.000 LF | | . | | . |
| 0731 | 655.0645 Electrical Wire Lighting 1/0 AWG | 6,840.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0915 | SPV.0060 Special 0608. Gates decorative HAST Ground Mounted 30-Ft | 1.000 EACH | | . | | . |
| 0916 | SPV.0060 Special 1010. Lamp Disposal High Intensity Discharge | 325.000 EACH | | . | | . |
| 0917 | SPV.0060 Special 1019. Relocating Light Poles, Arms and Luminaires | 6.000 EACH | | . | | . |
| 0918 | SPV.0060 Special 1031. Removing Aluminum Light Poles And Arms-Wauwatosa | 3.000 EACH | | . | | . |
| 0919 | SPV.0060 Special 1032. Removing Concrete Light Poles And Arms-Wauwatosa | 6.000 EACH | | . | | . |
| 0920 | SPV.0060 Special 1033. Removing Aluminum Light Poles, Arms And Luminaires | 111.000 EACH | | . | | . |
| 0921 | SPV.0060 Special 1035. Wood Pole Lighting 60-Ft | 76.000 EACH | | . | | . |
| 0922 | SPV.0060 Special 1036. Poles Wood 60-Ft | 21.000 EACH | | . | | . |
| 0923 | SPV.0060 Special 1037. Poles Wood 35-Ft | 42.000 EACH | | . | | . |
| 0924 | SPV.0060 Special 1040. Removing Poles Wood 60-Ft And Floodlights | 154.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0925 | SPV.0060 Special 1041. Removing Poles Wood 60-Ft | 47.000 EACH | | . | | . |
| 0926 | SPV.0060 Special 1042. Removing Poles Wood 35-Foot | 18.000 EACH | | . | | . |
| 0927 | SPV.0060 Special 1043. Removing Poles Wood 35-Ft And Floodlights | 24.000 EACH | | . | | . |
| 0928 | SPV.0060 Special 1050. Tunnel Luminaire | 319.000 EACH | | . | | . |
| 0929 | SPV.0060 Special 1051. Lighting Control Cabinet Tunnel Lighting | 2.000 EACH | | . | | . |
| 0930 | SPV.0060 Special 1052. Brackets Tunnel Lighting | 44.000 EACH | | . | | . |
| 0931 | SPV.0060 Special 1056. Junction Boxes Steel 18X12X6-Inch Coated | 19.000 EACH | | . | | . |
| 0932 | SPV.0060 Special 1065. Luminaire Utility LED E | 1.000 EACH | | . | | . |
| 0933 | SPV.0060 Special 1066. Salvaging Luminaire LED - DOT | 6.000 EACH | | . | | . |
| 0934 | SPV.0060 Special 1070. Luminaires Floodlight 1000W HPS | 70.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0935 | SPV.0060 Special 1071. Luminaires Floodlight 400W HPS | 58.000 EACH | | . | | . |
| 0936 | SPV.0060 Special 1078. Luminaire (UDL) Wallpack Led | 32.000 EACH | | . | | . |
| 0937 | SPV.0060 Special 1079. Luminaire (UDL) Wallpack LED-West Allis | 9.000 EACH | | . | | . |
| 0938 | SPV.0060 Special 1090. Salvage Lighting Control Cabinets | 11.000 EACH | | . | | . |
| 0939 | SPV.0060 Special 1100. Lighting Control Cabinet 480/277 VAC | 1.000 EACH | | . | | . |
| 0940 | SPV.0060 Special 1102. Lighting Control Cabinet With FTMS Power 480/277 VAC | 2.000 EACH | | . | | . |
| 0941 | SPV.0060 Special 1125. Poles Mount For Probeam Luminaire | 32.000 EACH | | . | | . |
| 0942 | SPV.0060 Special 1126. Concrete Bases Type 10P | 25.000 EACH | | . | | . |
| 0943 | SPV.0060 Special 1127. Probeam Luminaire | 33.000 EACH | | . | | . |
| 0944 | SPV.0060 Special 1128. Pole 13-Foot For Probeam Luminaire | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1105 | SPV.0090 Special 0412. Concrete Barrier Temporary Precast Anchored On Bridge | 775.000 LF | | . | | . |
| 1106 | SPV.0090 Special 0414. Concrete Barrier Temporary Precast Anchored On Asphaltic Bridge Overlay | 363.000 LF | | . | | . |
| 1107 | SPV.0090 Special 0600. Fence Temporary 6-Ft | 417.000 LF | | . | | . |
| 1108 | SPV.0090 Special 0605. Fence Decorative Hast Ground Mounted | 1,307.000 LF | | . | | . |
| 1109 | SPV.0090 Special 0610. Fence Chain Link Vinyl Coated 6-Ft | 426.000 LF | | . | | . |
| 1110 | SPV.0090 Special 0901. Minor Retaining Wall R-2 | 177.000 LF | | . | | . |
| 1111 | SPV.0090 Special 1005. Cable Aerial Aluminum 6 AWG Quadruplex | 13,459.000 LF | | . | | . |
| 1112 | SPV.0090 Special 1006. Cable Aerial Aluminum 4 AWG Quadruplex | 4,432.000 LF | | . | | . |
| 1113 | SPV.0090 Special 1007. Cable Aerial Aluminum 2 AWG Quadruplex | 4,850.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1182 | SPV.0105 Special 8099. Geotechnical Instrumentation | LUMP | LUMP | | | . |
| 1183 | SPV.0110 Special 4600. Timber Lagging **P** | 63.000 MBM | | . | | . |
| 1184 | SPV.0135 Special 0001. Vibration Monitoring | 455.000 MON | | . | | . |
| 1185 | SPV.0165 Special 4700. Longitudinal Grooving Bridge Deck **P** | 612,753.000 SF | | . | | . |
| 1186 | SPV.0165 Special 4710. Wall Concrete Panel Mechanically Stabilized Earth LRFD/QMP **P** | 212,283.000 SF | | . | | . |
| 1187 | SPV.0165 Special 4715. Mechanically Stabilized Earth Backfill Abutment | 10,379.000 SF | | . | | . |
| 1188 | SPV.0165 Special 4720. Wall Concrete Panel Mechanically Stabilized Earth LRFD/LFCF **P** | 14,816.000 SF | | . | | . |
| 1189 | SPV.0165 Special 4730. Wall Wire Faced Mechanically Stabilized Earth LRFD/QMP **P** | 6,853.000 SF | | . | | . |
| 1190 | SPV.0165 Special 4740. Wall Modular Block Mechanically Stabilized Earth LRFD **P** | 3,505.000 SF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1210 | SPV.0195 Special 0120. HMA Longitudinal Joint Repair | 40.000 TON | | . | | . |
| 1211 | SPV.0195 Special 0700. Management Of Solid Waste | 3,097.000 TON | | . | | . |
| 1212 | SPV.0195 Special 0801. Soil Drying Agent | 20,300.000 TON | | . | | . |
| 1334 | 630.0171 Seeding Mixture No. 70A | 439.000 LB | | . | | . |
| 1335 | 550.2148 Piling CIP Concrete 14 X 0.50-Inch | 1,395.000 LF | | . | | . |
| 1336 | SPV.0105 Special 0050. Partially Removing Existing Drilled Shafts | LUMP | LUMP | | | . |
| 1337 | SPV.0105 Special 0055. Seeding Establishment | LUMP | LUMP | | | . |
| 1338 | SPV.0120 Special 0001. Seeding Water | 16,627.000 MGAL | | . | | . |
| | SECTION 0001 TOTAL | | | | | . |

SECTION 0002 B-40-786 (Option A)
ALT GROUP AA1

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1213 | 206.1000 Excavation for Structures Bridges (structure) 0001. B-40-786 | LUMP | LUMP | | | . |
| 1214 | 209.0100 Backfill Granular | 24.000 CY | | . | | . |
| 1215 | 502.0100 Concrete Masonry Bridges **P** | 812.000 CY | | . | | . |
| 1216 | 505.0405 Bar Steel Reinforcement HS Bridges | 260,690.000 LB | | . | | . |
| 1217 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 190,360.000 LB | | . | | . |
| 1218 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 7.000 EACH | | . | | . |
| 1219 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 7.000 EACH | | . | | . |
| 1220 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 28.000 HRS | | . | | . |
| 1221 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 523.000 LF | | . | | . |
| | SECTION 0002 TOTAL | | | | | . |

SECTION 0003 B-40-786 (Option B)
ALT GROUP AA2

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1222 | 206.1000 Excavation for Structures Bridges (structure) 0001. B-40-786 | LUMP | LUMP | | | . |
| 1223 | 209.0100 Backfill Granular | 62.000 CY | | . | | . |
| 1224 | 502.0100 Concrete Masonry Bridges **P** | 1,211.000 CY | | . | | . |
| 1225 | 505.0405 Bar Steel Reinforcement HS Bridges | 213,150.000 LB | | . | | . |
| 1226 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 208,610.000 LB | | . | | . |
| 1227 | 511.1200 Temporary Shoring (structure) 0001. B-40-786 | 675.000 SF | | . | | . |
| 1228 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 5,580.000 LF | | . | | . |
| 1229 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 6.000 EACH | | . | | . |
| 1230 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 6.000 EACH | | . | | . |
| 1231 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 3.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1232 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 4.000 EACH | | . | | . |
| 1233 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 4.000 EACH | | . | | . |
| 1234 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 16.000 HRS | | . | | . |
| 1235 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 311.000 LF | | . | | . |
| | SECTION 0003 TOTAL | | | | | . |

SECTION 0004 B-40-853 (Option A)
ALT GROUP BB1

| | | | | | | |
|---|---|---|---|---|---|---|
| 1236 | 206.1000 Excavation for Structures Bridges (structure) 0009. B-40-853 | LUMP | LUMP | | | . |
| 1237 | 209.0100 Backfill Granular | 40.000 CY | | . | | . |
| 1238 | 502.0100 Concrete Masonry Bridges **P** | 428.000 CY | | . | | . |
| 1239 | 505.0405 Bar Steel Reinforcement HS Bridges | 137,850.000 LB | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1240 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 100,380.000 LB | | . | | . |
| 1241 | 505.0911 Bar Couplers No. 11 | 96.000 EACH | | . | | . |
| 1242 | 511.1200 Temporary Shoring (structure) 0011. B-40-853 | 2,740.000 SF | | . | | . |
| 1243 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 5.000 EACH | | . | | . |
| 1244 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98.43-Inch | 5.000 EACH | | . | | . |
| 1245 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 20.000 HRS | | . | | . |
| 1246 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 298.000 LF | | . | | . |
| | SECTION 0004 TOTAL | | | | | . |

SECTION 0005 B-40-853 (Option B)
ALT GROUP BB2

| | | | | | | |
|---|---|---|---|---|---|---|
| 1247 | 206.1000 Excavation for Structures Bridges (structure) 0009. B-40-853 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1248 | 209.0100 Backfill Granular | 40.000 CY | | . | | . |
| 1249 | 502.0100 Concrete Masonry Bridges **P** | 559.000 CY | | . | | . |
| 1250 | 505.0405 Bar Steel Reinforcement HS Bridges | 129,440.000 LB | | . | | . |
| 1251 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 102,550.000 LB | | . | | . |
| 1252 | 505.0911 Bar Couplers No. 11 | 96.000 EACH | | . | | . |
| 1253 | 511.1200 Temporary Shoring (structure) 0011. B-40-853 | 2,740.000 SF | | . | | . |
| 1254 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 1,650.000 LF | | . | | . |
| 1255 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 2.000 EACH | | . | | . |
| 1256 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 2.000 EACH | | . | | . |
| 1257 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1258 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 4.000 EACH | | . | | . |
| 1259 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 4.000 EACH | | . | | . |
| 1260 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 16.000 HRS | | . | | . |
| 1261 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 236.500 LF | | . | | . |
| | SECTION 0005 TOTAL | | | | | . |
| SECTION 0006 B-40-854 (Option A) ALT GROUP CC1 | | | | | | |
| 1262 | 206.1000 Excavation for Structures Bridges (structure) 0010. B-40-854 | LUMP | LUMP | | | . |
| 1263 | 209.0100 Backfill Granular | 250.000 CY | | . | | . |
| 1264 | 502.0100 Concrete Masonry Bridges **P** | 2,771.000 CY | | . | | . |
| 1265 | 505.0405 Bar Steel Reinforcement HS Bridges | 435,860.000 LB | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1266 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 755,100.000 LB | | . | | . |
| 1267 | 505.0800.S Bar Steel Reinforcement HS Stainless Structures | 1,430.000 LB | | . | | . |
| 1268 | 505.0911 Bar Couplers No. 11 | 144.000 EACH | | . | | . |
| 1269 | 511.1200 Temporary Shoring (structure) 0012. B-40-854 | 3,240.000 SF | | . | | . |
| 1270 | 612.0106 Pipe Underdrain 6-Inch | 40.000 LF | | . | | . |
| 1271 | 612.0206 Pipe Underdrain Unperforated 6-Inch | 40.000 LF | | . | | . |
| 1272 | 645.0111 Geotextile Fabric Type DF Schedule A | 33.000 SY | | . | | . |
| 1273 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 14.000 EACH | | . | | . |
| 1274 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 5.000 EACH | | . | | . |
| 1275 | SPV.0060 Special 4162. Tip Testing Drilled Foundation Shaft 118. 11-Inch | 9.000 EACH | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1276 | SPV.0060 Special 4181. Bar Couplers No. 18 | 210.000 EACH | | . | | . |
| 1277 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 56.000 HRS | | . | | . |
| 1278 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 364.000 LF | | . | | . |
| 1279 | SPV.0090 Special 4440. Drilled Foundation Shaft 118.11-Inch | 525.000 LF | | . | | . |
| 1280 | SPV.0105 Special 4520. Trial Drilled Foundation Shaft 118.11-Inch | LUMP | LUMP | | | . |
| | SECTION 0006 TOTAL | | | | | . |

SECTION 0007 B-40-854 (Option B)
ALT GROUP CC2

| | | | | | | |
|---|---|---|---|---|---|---|
| 1281 | 206.1000 Excavation for Structures Bridges (structure) 0010. B-40-854 | LUMP | LUMP | | | . |
| 1282 | 209.0100 Backfill Granular | 2,190.000 CY | | . | | . |
| 1283 | 502.0100 Concrete Masonry Bridges **P** | 3,938.000 CY | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1284 | 505.0405 Bar Steel Reinforcement HS Bridges | 377,110.000 LB | | . | | . |
| 1285 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 720,240.000 LB | | . | | . |
| 1286 | 505.0800.S Bar Steel Reinforcement HS Stainless Structures | 1,430.000 LB | | . | | . |
| 1287 | 505.0911 Bar Couplers No. 11 | 96.000 EACH | | . | | . |
| 1288 | 511.1200 Temporary Shoring (structure) 0012. B-40-854 | 3,240.000 SF | | . | | . |
| 1289 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 14,870.000 LF | | . | | . |
| 1290 | 612.0106 Pipe Underdrain 6-Inch | 40.000 LF | | . | | . |
| 1291 | 612.0206 Pipe Underdrain Unperforated 6-Inch | 40.000 LF | | . | | . |
| 1292 | 645.0111 Geotextile Fabric Type DF Schedule A | 33.000 SY | | . | | . |
| 1293 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 16.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1294 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 16.000 EACH | | . | | . |
| 1295 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 8.000 EACH | | . | | . |
| 1296 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 6.000 EACH | | . | | . |
| 1297 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 2.000 EACH | | . | | . |
| 1298 | SPV.0060 Special 4162. Tip Testing Drilled Foundation Shaft 118. 11-Inch | 4.000 EACH | | . | | . |
| 1299 | SPV.0060 Special 4181. Bar Couplers No. 18 | 70.000 EACH | | . | | . |
| 1300 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 24.000 HRS | | . | | . |
| 1301 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 207.000 LF | | . | | . |
| 1302 | SPV.0090 Special 4440. Drilled Foundation Shaft 118.11-Inch | 227.000 LF | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1303 | SPV.0105 Special 4520. Trial Drilled Foundation Shaft 118.11-Inch | LUMP | LUMP | | | . |
| | SECTION 0007 TOTAL | | | | | . |

SECTION 0008 B-40-856 (Option A)
ALT GROUP DD1

| | | | | | | |
|---|---|---|---|---|---|---|
| 1304 | 206.1000 Excavation for Structures Bridges (structure) 0011. B-40-856 | LUMP | LUMP | | | . |
| 1305 | 209.0100 Backfill Granular | 73.000 CY | | . | | . |
| 1306 | 502.0100 Concrete Masonry Bridges **P** | 2,828.000 CY | | . | | . |
| 1307 | 505.0405 Bar Steel Reinforcement HS Bridges | 325,210.000 LB | | . | | . |
| 1308 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 675,740.000 LB | | . | | . |
| 1309 | 511.1200 Temporary Shoring (structure) 0003. B-40-856 | 2,445.000 SF | | . | | . |
| 1310 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 12.000 EACH | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1311 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98.43-Inch | 2.000 EACH | | . | | . |
| 1312 | SPV.0060 Special 4162. Tip Testing Drilled Foundation Shaft 118.11-Inch | 10.000 EACH | | . | | . |
| 1313 | SPV.0060 Special 4181. Bar Couplers No. 18 | 150.000 EACH | | . | | . |
| 1314 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 48.000 HRS | | . | | . |
| 1315 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 115.000 LF | | . | | . |
| 1316 | SPV.0090 Special 4440. Drilled Foundation Shaft 118.11-Inch | 598.000 LF | | . | | . |
| | SECTION 0008 TOTAL | | | | | . |

SECTION 0009 B-40-856 (Option B)
ALT GROUP DD2

| | | | | | | |
|---|---|---|---|---|---|---|
| 1317 | 206.1000 Excavation for Structures Bridges (structure) 0011. B-40-856 | LUMP | LUMP | | | . |
| 1318 | 209.0100 Backfill Granular | 133.000 CY | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1319 | 502.0100 Concrete Masonry Bridges **P** | 3,502.000 CY | | . | | . |
| 1320 | 505.0405 Bar Steel Reinforcement HS Bridges | 319,380.000 LB | | . | | . |
| 1321 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 649,700.000 LB | | . | | . |
| 1322 | 511.1200 Temporary Shoring (structure) 0003. B-40-856 | 2,955.000 SF | | . | | . |
| 1323 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 7,980.000 LF | | . | | . |
| 1324 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 10.000 EACH | | . | | . |
| 1325 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 10.000 EACH | | . | | . |
| 1326 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 5.000 EACH | | . | | . |
| 1327 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 7.000 EACH | | . | | . |
| 1328 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1329 | SPV.0060 Special 4162. Tip Testing Drilled Foundation Shaft 118. 11-Inch | 6.000 EACH | | . | | . |
| 1330 | SPV.0060 Special 4181. Bar Couplers No. 18 | 90.000 EACH | | . | | . |
| 1331 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 28.000 HRS | | . | | . |
| 1332 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 65.000 LF | | . | | . |
| 1333 | SPV.0090 Special 4440. Drilled Foundation Shaft 118.11-Inch | 355.000 LF | | . | | . |
| | SECTION 0009 TOTAL | | | | | . |
| | TOTAL BID | | | | | . |

# Wisconsin Department of Transportation

**Division of Transportation Systems Development**
Bureau of Project Development
4802 Sheboygan Avenue, Rm 601
P O Box 7916
Madison, WI 53707-7916

Telephone: (608) 266-1631
Facsimile (FAX): (608) 266-8459

September 23, 2015

## NOTICE TO ALL CONTRACTORS:

**Proposal #01: 1060-33-81, WISC 2015 473**
**Zoo IC – Zoo Interchange Phase 2**
**Lincoln – Bluemound, 121st to 70th**
**USH 45**
**Milwaukee County**

**1060-34-82**
**Zoo IC – IH 894 NB Auxiliary Lane**
**Oklahoma Ave to National Ave**
**IH 894**
**Milwaukee County**

**1060-43-81, WISC 2015 474**
**East West Freeway**
**Underwood Cr Prkwy & 121st St Brdg**
**IH 94**
**Milwaukee County**

## Letting of September 29, 2015

This is Addendum No. 04, which provides for the following:

**Special Provisions**

| **Revised** Special Provisions | |
|---|---|
| Article No. | Description |
| 4 | Prosecution and Progress |
| 5 | Lane Rental Assessment |
| 54 | Pay Plan Quantity |
| 88 | Railing Pipe B-40-585, Item 513.2000.0001; R-40-467, Item 513.2000.0002; R-40-469, Item 513.2000.0003; R-40-498, Item 513.2000.0004; R-40-507, Item 513.2000.0005; R-40-509, Item 513.2000.0006; R-40-511, Item 513.2000.0007; R-40-516, Item 513.2000.0008; R-40-518, Item 513.2000.0009; R-40-522, Item 513.2000.0010; R-40-524, Item 513.2000.0011; R-40-525, Item 513.2000.0012; R-40-540, Item 513.2000.0013; R-40-545, Item 513.2000.0014; R-40-5557, Item 513.2000.0015; R-40-558, Item 513.2000.0016; R-40-559, Item 513.2000.0017; R-40-797, Item 513.2000.0018; R-40-655, Item 513.2000.0019. |

| | |
|---|---|
| 91 | Concrete Staining B-40-786, Item 517.1010.S.0001; B-40-787, Item 517.1010.S.0002; B-40-788, Item 517.1010.S.0003; B-40-790, Item 517.1010.S.0004; B-40-795, Item 517.1010.S.0005; B-40-796, Item 517.1010.S.0006; B-40-797, Item 517.1010.S.0007; B-40-850, Item 517.1010.S.0008; B-40-851, Item 517.1010.S.0009; B-40-853, Item 517.1010.S.0010; B-40-854, Item 517.1010.S.0011; B-40-856, Item 517.1010.S.0012; B-40-858, Item 517.1010.S.0013; B-40-859, Item 517.1010.S.0014; B-40-860, Item 517.1010.S.0015; B-40-861, Item 517.1010.S.0016; B-40-867, Item 517.1010.S.0017; B-40-869, Item 517.1010.S.0018; B-40-870, Item 517.1010.S.0019; B-40-882, Item 517.1010.S.0021; B-40-883, Item 517.1010.S.0022; R-40-467, Item 517.1010.S.0023; R-40-468, Item 517.1010.S.0024; R-40-469, Item 517.1010.S.0025; R-40-470, Item 517.1010.S.0026; R-40-497, Item 517.1010.S.0027; R-40-498, Item 517.1010.S.0028; R-40-505, Item 517.1010.S.0029; R-40-507, Item 517.1010.S.0030; R-40-509, Item 517.1010.S.0031; R-40-511, Item 517.1010.S.0033; R-40-516, Item 517.1010.S.0034; R-40-518, Item 517.1010.S.0035; R-40-520, Item 517.1010.S.0036; R-40-522, Item 517.1010.S.0037; R-40-524, Item 517.1010.S.0038; R-40-525, Item 517.1010.S.0039; R-40-527, Item 517.1010.S.0040; R-40-529, Item 517.1010.S.0041; R-40-532, Item 517.1010.S.0042; R-40-534, Item 517.1010.S.0043; R-40-535, Item 517.1010.S.0044; R-40-540, Item 517.1010.S.0045; R-40-545, Item 517.1010.S.0046; R-40-547, Item 517.1010.S.0047; R-40-557, Item 517.1010.S.0048; R-40-558, Item 517.1010.S.0049; R-40-559, Item 517.1010.S.0050; S-40-11, Item 517.1010.S.0051; S-40-13, Item 517.1010.S.0052; S-40-15, Item 517.1010.S.0053; S-40-26, Item 517.1010.S.0054; S-40-29, Item 517.1010.S.0055; S-40-30, Item 517.1010.S.0056; S-40-31, Item 517.1010.S.0057; S-40-35, Item 517.1010.S.0058; S-40-40, Item 517.1010.S.0060; S-40-42, Item 517.1010.S.0062; S-40-46, Item 517.1010.S.0063; S-40-52, Item 517.1010.S.0064; S-40-74, Item 517.1010.S.0065; S-40-82, Item 517.1010.S.0067; S-40-102, Item 517.1010.S.0069; S-40-111, Item 517.1010.S.0072; S-40-114, Item 517.1010.S.0074; S-40-115, Item 517.1010.S.0075; S-40-3, Item 517.1010.S.0076; S-40-8, Item 517.1010.S.0077; S-40-10, Item 517.1010.S.0078; S-40-19, Item 517.1010.S.0079; S-40-20, Item 517.1010.S.0080; S-40-23, Item 517.1010.S.0081; S-40-33, Item 517.1010.S.0082; S-40-34, Item 517.1010.S.0083; S-40-45, Item 517.1010.S.0084; S-40-53, Item 517.1010.S.0085; S-40-55, Item 517.1010.S.0086; S-40-80, Item 517.1010.S.0087; S-40-81, Item 517.1010.S.0088; S-40-84, Item 517.1010.S.0089; S-40-86, Item 517.1010.S.0090; S-40-91, Item 517.1010.S.0091; S-40-93, Item 517.1010.S.0092; S-40-97, Item 517.1010.S.0094; S-40-98, Item 517.1010.S.0095; S-40-103, Item 517.1010.S.0096; S-40-105, Item 517.1010.S.0097; S-40-112, Item 517.1010.S.0098; S-40-138, Item 517.1010.S.0099; B-40-871, Item 517.1010.S.0103; B-40-872, Item 517.1010.S.0104; B-40-873, Item 517.1010.S.0105; B-40-874, Item 517.1010.S.0106; R-40-495, Item 517.1010.S.0107; R-40-631, Item 517.1010.S.0109; R-40-655, Item 517.1010.S.0110; S-40-782, Item 517.1010.S.0111; S-40-787, Item 517.1010.S.0112; S-67-47, Item 517.1010.S.0113 |
| 92 | Concrete Staining Multi-Color B-40-870, Item 517.1015.S.0001; R-40-525, Item 517.1015.S.0002; R-40-529, Item 517.1015.S.0003; R-40-532, Item 517.1015.S.0004; R-40-534, Item 517.1015.S.0005; R-40-540, Item 517.1015.S.0006; Minor Retaining Wall R-2, Item 517.1015.S.0007; R-40-524, Item 517.1015.S.0008 |
| 318 | Install Temporary Pavement Marking Reflective Orange Paint 4-Inch, Item SPV.0090.0320; 8-Inch, Item SPV.0090.0322; 24-Inch, Item SPV.0090.0324; Install Temporary Pavement Marking Orange Arrows, Item SPV.0060.0320 |
| 333 | Fence Decorative Bridge, Item SPV.0090.4400; Fence Decorative Wall, Item SPV.0090.4410 |
| 334 | Fence Decorative HAST Structure Mounted, Item SPV.0090.4411; Fence Decorative HAST Ground Mounted, Item SPV.0090.0605 |
| 355 | Lining 96-Inch Reinforced Concrete Storm Sewer Pipe, Item SPV.0090.8090 |
| 389 | Concrete Staining Previously Constructed Structure, Item SPV.0165.4785 |
| 390 | Concrete Staining Multi-Color Previously Constructed Structure, Item SPV.0165.4786 |

| **Added** Special Provisions | |
|---|---|
| Article No. | Description |
| 409 | Maintaining and Removing Crash Cushion, Item SPV.0060.0430 |

**Schedule of Items**

| **Revised** Bid Item Quantities | | | | | |
|---|---|---|---|---|---|
| Bid Item | Item Description | Unit | Old Quantity | Revised Quantity | Proposal Total |
| 204.0195 | Removing Concrete Bases | EACH | 15 | 12 | 137 |
| 204.0210 | Removing Manholes | EACH | 18 | 23 | 96 |
| 305.0120 | Base Aggregate Dense 1 ¼-Inch | TON | 271,829 | REMOVE PPQ | 271,829 |
| 653.0905 | Removing Pull Boxes | EACH | 55 | 49 | 50 |
| SPV.0060.0403 | Traffic Control Local Road Lane Closures | EACH | 50 | 250 | 250 |
| SPV.0060.2002 | Removing Ramp Control Signal Assembly Sidemount | EACH | 10 | 6 | 6 |
| SPV.0060.2003 | Removing Controller Cabinet | EACH | 5 | 6 | 6 |
| SPV.0060.2006 | Removing Electrical Service Meter Breaker Pedestal | EACH | 4 | 6 | 6 |
| SPV.0060.2009 | Removing Microwave Detector Assembly | EACH | 2 | 5 | 5 |
| SPV.0090.4450 | Removing Temporary Shoring Left In Place | LF | 549 | 357 | 622 |

| **Added** Bid Item Quantities | | | | | |
|---|---|---|---|---|---|
| Bid Item | Item Description | Unit | Old Quantity | Revised Quantity | Proposal Total |
| SPV.0060.0430 | Maintaining and Removing Crash Cushion | Each | 0 | 33 | 33 |

**Plan Sheets**

| **Revised** Plan Sheets | |
|---|---|
| Plan Sheet | Plan Sheet Title (brief description of changes to sheet) |
| 383 | Revised temporary shoring left in place removals |
| 1627-1630 | Added Maintaining and Removing Crash Cushion item |
| 1636 | Revised temporary shoring left in place quantity |
| 1837 | Revised Traffic Control Local Road Lane Closure quantity |
| 1905 | Revised ITS Removal quantity totals |

| **Added** Plan Sheets | |
|---|---|
| Plan Sheet | Plan Sheet Title (brief description of why sheet was added) |
| 1904A | Replaced ITS Removal quantities |

| **Deleted** Plan Sheets | |
|---|---|
| Plan Sheet | Plan Sheet Title (brief description of why sheet was deleted) |
| 1904 | Deleted ITS Removal quantities |

The responsibility for notifying potential subcontractors and suppliers of these changes remains with the prime contractor.

Sincerely,

*Mike Coleman*

Proposal Development Specialist
Proposal Management Section

**ADDENDUM NO. 04**

**1060-33-81**

**September 23, 2015**

**Special Provisions**

**4. Prosecution and Progress**

*Add the following paragraphs after paragraph 2 under section titled* **Service Ramp Closure Restrictions**

Do not close the entrance ramp from National Avenue and the entrance ramp from Oklahoma Avenue to northbound IH 894/USH 45 at the same time.

Do not close the entrance ramp from National Avenue and the entrance ramp from Lincoln Avenue to northbound IH 894/USH 45 prior to the closure of any freeway lanes on northbound IH 894/USH 45, as shown in Stage 2 of project 1060-33-81, or as approved by the engineer.

**5. Lane Rental Assessment**

*Replace the table after the first paragraph under section titled* **A.1 Freeway Lane Rental Assessment Table** *with the following:*

| Freeway Lane Rental Assessment Table | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Freeway Closure Type | Peak Hours | | Weekday Midday and Weekend Peak Hours | | Weekday Off-Peak | | Weekend Off-Peak Hours | | Night Time Hours | |
| | Hourly Rental | Closure Hour Credits | Hourly Rental | Closure Hour Credits | Hourly Rental | Closure Hour Credits | Hourly Rental | Closure Hour Credits | Hourly Rental | Closure Hour Credits |
| Shoulder when at least 8 ft, shoulder is reduced to less than 8 ft. | $2,500 | 0 | $1,900 | 0 | $950 | 824 | $400 | 618 | $50 | 7023 |
| Single Lane when 2 or more lanes next to closure are open to traffic | $35,000 | 0 | $30,000 | 0 | $7,200 | 0 | $1,800 | 1235 | $200 | 8670 |

| Freeway Lane Rental Assessment Table | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Freeway Closure Type | Peak Hours | | Weekday Midday and Weekend Peak Hours | | Weekday Off-Peak | | Weekend Off-Peak Hours | | Night Time Hours | |
| | Hourly Rental | Closure Hour Credits | Hourly Rental | Closure Hour Credits | Hourly Rental | Closure Hour Credits | Hourly Rental | Closure Hour Credits | Hourly Rental | Closure Hour Credits |
| Single Lane when only 1 lane next to closure is open to traffic | $63,500 | 0 | $50,000 | 0 | $20,000 | 0 | $9,200 | 0 | $900 | 2706 |
| 2 lanes when 2 lanes next to closure are open to traffic | $40,000 | 0 | $25,000 | 0 | $13,400 | 0 | $6,900 | 0 | $700 | 5117 |
| 2 lanes when 1 lane next to closure is open to traffic | $63,500 | 0 | $35,600 | 0 | $17,800 | 0 | $9,200 | 0 | $900 | 1906 |
| Service Ramp | $2,000 | 0 | $1,700 | 72* | $1,500 | 0 | $1,000 | 48* | $700 | 6959 |
| System Ramp | $42,500 | 0 | $20,000 | 27* | $10,000 | 0 | $4,700 | 18* | $700 | 7708 |
| Full Roadway Closure (One Direction of the Freeway) | $120,000 | 0 | $80,000 | 72* | $40,000 | 0 | $28,000 | 48* | $1650 | 5977 |

**54. Pay Plan Quantity**

*Replace entire article language with the following:*

**A Bid Items Designated as Pay Plan Quantity**

*Replace standard spec109.1.1.2 with the following:*

If the schedule of items designates a bid item with a **P** in the title, the department will not measure that bid item. The department will use the plan quantity, the approximate quantity shown on the schedule of items, for payment unless a contract revision affects a designated bid item.

If the engineer revises the contract under standard spec 104.2, the department will adjust the quantity of designated items that are affected by the revised work. The engineer will adjust the

affected quantity, with a contract modification as defined in standard spec 101.3, regardless of the magnitude of the revised work, which may result in either an increase or a decrease from the quantity shown on the schedule of items. The department will measure revised work as specified in standard spec 109.1.1.1. If the engineer revises the contract to eliminate a designated item, the engineer will not pay for the designated item, except as specified in standard spec 109.5.

The approximate quantity shown on the schedule of items for a designated item is for information only and only an estimate. The engineer makes no guarantee that the quantity, which can be determined by computations based on contract information, will equal the approximate quantity shown on the schedule of items.

If the engineer or contractor believes that the quantity shown in the schedule of items varies significantly from the work required in the contract or a quantity discrepancy significantly changes the character of the work, then follow the procedures as outlined in standard spec 104.2.

**88. Railing Pipe B-40-585, Item 513.2000.0001; R-40-467, Item 513.2000.0002; R-40-469, Item 513.2000.0003; R-40-498, Item 513.2000.0004; R-40-507, Item 513.2000.0005; R-40-509, Item 513.2000.0006; R-40-511, Item 513.2000.0007; R-40-516, Item 513.2000.0008; R-40-518, Item 513.2000.0009; R-40-522, Item 513.2000.0010; R-40-524, Item 513.2000.0011; R-40-525, Item 513.2000.0012; R-40-540, Item 513.2000.0013; R-40-545, Item 513.2000.0014; R-40-5557, Item 513.2000.0015; R-40-558, Item 513.2000.0016; R-40-559, Item 513.2000.0017; R-40-797, Item 513.2000.0018; R-40-655, Item 513.2000.0019.**

*Replace entire article language with the following:*

**A Description**
This special provision describes fabricating, galvanizing, painting and installing steel pipe railing in accordance with Sections 506, 513 and 517 of the Standard Specifications and the plan details, as directed by the Engineer, and as hereinafter provided..

**B Materials**
All materials for steel pipe railing shall be new stock, free from defects impairing strength, durability and appearance. Railing assemblies shall be galvanized and receive a two-coat paint system. Bubbles, blisters and flaking in the coating will be a basis for rejection.

**B1.1 Two-Coat Paint System**
Use one of the qualified paint manufacturers and products given below with the prime coat specifically intended for painting of galvanized surfaces. An equivalent system may be used with the written approval of the Engineer.

| Producer | Coat | Products | Dry Film Minimum Thickness (mils) | Minimum Time Between Coats (hours) |
|---|---|---|---|---|
| Sherwin Williams<br>1051 Permeter Drive,<br>Suite 710<br>Schaumburg, IL 60173<br>847.330.1562 | Tie | Recoatable Epoxy Primer B67-5 Series/B67V5 | 2.0 to 4.0 | 6 |
| | Top | Acrolon 218 HS Polyurethane , B65-650 | 2.0 to 4.0 | NA |
| Carboline<br>350 Hanley Industrial | Tie | Rustbond Penetrating Sealer FC | 1 | 36 |

| | | | | |
|---|---|---|---|---|
| St. Louis, MO 63144<br>314.644.1000 | Tie | Carboguard 60 | 4.0 to 6.0 | 10 |
| | Tie | Carboguard 635 | 4.0 to 6.0 | 1 |
| | Top | Carboline 133 LH(satin) | 4 | NA |
| Wasser Corporation<br>4118 B Place NW<br>Suite B<br>Aubum, WA 98001 | Tie | MC-Ferrox B 100 | 3.0 to 5.0 | 8 |
| | Top | MC-Luster 100 | 2.0 to 4.0 | NA |
| PPG Protective and Marine Coatings<br>P.O. Box 192610<br>Little Rock, AR 72219-2610<br>414-339-5084 | Tie | Amercoat 399 | 3.0 to 5.0 | 3 |
| | Top | Amercoat 450H | 2.0 to 4.0 | NA |

**B1.2 Color**
The finished color for coating system for railing pipe shall match Federal Color 37038 – Black

**C Construction**
*Supplement paragraph 513.3.1(1) with the following:*
Submit shop drawings showing the details of railing construction. Show the railing height post spacing, rail location, weld sizes and locations and all dimensions necessary for the construction of the railing. Show location of shop rail splices, field erection joints and expansion joints. State the name of the paint manufacturer and the product name of the tie coat and top coat used along with the color. State the size and material type used for all components. Also show the size and location of any vent or drainage holes provided.

*Delete paragraph 513.3.1(6) and replace with the following:*
**C1.1 Galvanizing**
After fabrication, blast clean steel railing assemblies per SSPC-SP6 and galvanize according to ASTM A123. Vent holes shall be drilled in members as required to facilitate galvanizing and drainage. Location and size of vent holes are to be shown on the shop drawings. All burrs at component edges, corners and at holes shall be removed and sharp edges chamfered before galvanizing. Condition any thermal cut edges before blast cleaning by shallow grinding or other cleaning to remove any hardened surface layer. Remove all evident steel defects exposed in accordance to AASHTO M 160 prior to blast cleaning. Lumps, projections, globules, or heavy deposits of galvanizing, which will provide surface conditions that when painted, will produce unacceptable aesthetic and/or visual qualities, will not be permitted.

**C1.2 Two-Coat Paint System**
After galvanizing, paint all exterior surfaces of steel railing assemblies and inside of rail elements at field erection and expansion joints as hereinafter provided. All galvanized surfaces to be painted shall be cleaned per SSPC-SP1 to remove chlorides, sulfates, zinc salts, oil, dirt, organic matter and other contaminants. The cleaned surface shall then be brush blast cleaned per SSPC-SP16 to create a slight angular surface profile per manufacturer's recommendation for adhesion of the tie coat. Blasting shall not fracture the galvanized finish or remove any dry film thickness. After cleaning, apply a tie coat from an approved coating system that is specifically intended to be used on a galvanized surface, per manufacturer's recommendations. The tie coat shall etch the galvanized rail and prepare the surface for the top coat. Apply a top coat per manufacturer's recommendations, matching the specified color shown on the plans. Use a preapproved top coat that is resistant to the effects of the sun and is suitable for a marine environment. The tie and top coats should be of contrasting colors, and come from the same manufacturer.

Ensure that the paint manufacturer reviews the process to be used for surface preparation and application of the paint coating system with the paint applier. The review shall include a visit to the facility performing the work if requested by the paint manufacturer. Provide written confirmation, from the paint manufacturer to the engineer, that the review has taken place and that issues raised have been addressed before beginning coating work under the contract.

**C1.3 Delivery, Storage and Handling**
Deliver material to the site in an undamaged condition. Upon receipt at the job site, all materials shall be thoroughly inspected to ensure that no damage occurred during shipping or handling and conditions of materials is in conformance with these specifications. If coating is damaged, Contractor shall repair or replace railing assemblies to the approval of the Engineer at no additional cost to the Owner. Carefully store the material off the ground to ensure proper ventilation and drainage. Exercise care so as not to damage the coated surface during railing installation. No field welding, field cutting or drilling will be permitted without the approval of the Engineer.

**C1.4 Touch-up and Repair**
For minor damage caused by shipping, handling or installation to coated surfaces, touch-up the surface in conformance with the manufacturer's recommendations. If damage is excessive, the railing assembly shall be replaced at no additional cost to the Owner. The Contractor shall provide the Engineer with a copy of the manufacturer's recommended repair procedure and materials before repairing damaged coatings

**D (Vacant)**

**E Payment**
*Delete paragraph 513.5(2) and replace with the following:*

Payment for the Railing Pipe is full compensation for providing, fabricating, surface preparation, galvanizing, cleaning and painting, transporting, and installing the railing, including any touch-up and repairs; for providing and placing metal shims under the bases if required; for providing and placing the anchor bolts.

**91. Concrete Staining B-40-786, Item 517.1010.S.0001; B-40-787, Item 517.1010.S.0002; B-40-788, Item 517.1010.S.0003; B-40-790, Item 517.1010.S.0004; B-40-795, Item 517.1010.S.0005; B-40-796, Item 517.1010.S.0006; B-40-797, Item 517.1010.S.0007; B-40-850, Item 517.1010.S.0008; B-40-851, Item 517.1010.S.0009; B-40-853, Item 517.1010.S.0010; B-40-854, Item 517.1010.S.0011; B-40-856, Item 517.1010.S.0012; B-40-858, Item 517.1010.S.0013; B-40-859, Item 517.1010.S.0014; B-40-860, Item 517.1010.S.0015; B-40-861, Item 517.1010.S.0016; B-40-867, Item 517.1010.S.0017; B-40-869, Item 517.1010.S.0018; B-40-870, Item 517.1010.S.0019; B-40-882, Item 517.1010.S.0021; B-40-883, Item 517.1010.S.0022; R-40-467, Item 517.1010.S.0023; R-40-468, Item 517.1010.S.0024; R-40-469, Item 517.1010.S.0025; R-40-470, Item 517.1010.S.0026; R-40-497, Item 517.1010.S.0027; R-40-498, Item 517.1010.S.0028; R-40-505, Item 517.1010.S.0029; R-40-507, Item 517.1010.S.0030; R-40-509, Item 517.1010.S.0031; R-40-511, Item 517.1010.S.0033; R-40-516, Item 517.1010.S.0034; R-40-518, Item 517.1010.S.0035; R-40-520, Item 517.1010.S.0036; R-40-522, Item 517.1010.S.0037; R-40-524, Item 517.1010.S.0038; R-40-525, Item 517.1010.S.0039; R-40-527, Item 517.1010.S.0040; R-40-529, Item 517.1010.S.0041; R-40-532, Item 517.1010.S.0042; R-40-534, Item 517.1010.S.0043; R-40-535, Item 517.1010.S.0044; R-40-540, Item 517.1010.S.0045; R-40-545, Item 517.1010.S.0046; R-40-547, Item 517.1010.S.0047; R-40-557, Item 517.1010.S.0048; R-40-558, Item 517.1010.S.0049; R-40-559, Item 517.1010.S.0050; S-40-11, Item 517.1010.S.0051; S-40-13, Item 517.1010.S.0052; S-40-15, Item 517.1010.S.0053; S-40-26, Item 517.1010.S.0054; S-40-29, Item 517.1010.S.0055; S-40-30, Item 517.1010.S.0056; S-40-31, Item 517.1010.S.0057; S-40-35, Item 517.1010.S.0058; S-40-40, Item 517.1010.S.0060; S-40-42, Item 517.1010.S.0062; S-40-46, Item 517.1010.S.0063; S-40-52, Item 517.1010.S.0064; S-40-74, Item 517.1010.S.0065; S-40-82, Item 517.1010.S.0067; S-40-102, Item 517.1010.S.0069; S-40-111, Item 517.1010.S.0072; S-40-114, Item**

**517.1010.S.0074; S-40-115, Item 517.1010.S.0075; S-40-3, Item 517.1010.S.0076; S-40-8, Item 517.1010.S.0077; S-40-10, Item 517.1010.S.0078; S-40-19, Item 517.1010.S.0079; S-40-20, Item 517.1010.S.0080; S-40-23, Item 517.1010.S.0081; S-40-33, Item 517.1010.S.0082; S-40-34, Item 517.1010.S.0083; S-40-45, Item 517.1010.S.0084; S-40-53, Item 517.1010.S.0085; S-40-55, Item 517.1010.S.0086; S-40-80, Item 517.1010.S.0087; S-40-81, Item 517.1010.S.0088; S-40-84, Item 517.1010.S.0089; S-40-86, Item 517.1010.S.0090; S-40-91, Item 517.1010.S.0091; S-40-93, Item 517.1010.S.0092; S-40-97, Item 517.1010.S.0094; S-40-98, Item 517.1010.S.0095; S-40-103, Item 517.1010.S.0096; S-40-105, Item 517.1010.S.0097; S-40-112, Item 517.1010.S.0098; S-40-138, Item 517.1010.S.0099; B-40-871, Item 517.1010.S.0103; B-40-872, Item 517.1010.S.0104; B-40-873, Item 517.1010.S.0105; B-40-874, Item 517.1010.S.0106; R-40-495, Item 517.1010.S.0107; R-40-631, Item 517.1010.S.0109; R-40-655, Item 517.1010.S.0110; S-40-782, Item 517.1010.S.0111; S-40-787, Item 517.1010.S.0112; S-67-47, Item 517.1010.S.0113**

*Replace section titled* **B.1 Mortar** *with the following:*

**B.1 Mortar**
Use mortar for sack rubbing the concrete surfaces as given in standard spec 502.3.7.5 or use one of the following products:

| | |
|---|---|
| Preblended, Packaged Type II Cement: | TK Products Tri-Mix<br>BASF MasterSeal 581 Pearl Gray |

The mortar shall contain one of the following acrylic bonding admixtures mixed and applied in accordance to manufacturer's recommendations:

| | |
|---|---|
| Acrylic Bonding Admixture: | TK Products TK-225<br>Thoro Products Achro 60<br>BASF MasterEmaco A660 |

*Replace section titled* **B.2 Concrete Stain** *with the following:*

**B.2 Concrete Stain**
Use concrete stain manufactured for use on exterior concrete surfaces, consisting of a base coat and a pigmented sealer finish coat. Use the following products, or equal as approved by the department, as part of the two coat finish system:

TK Products 5321 Tri-Sheen Concrete Surfacer, Smooth
TK Products 5342 Tri-Sheen Acrylic
TK Products 1450 Natural Look Urethane Anti-Graffiti Primer
ChemMasters Safe-Cure and Seal EPX
Sherwin-Williams H&C Concrete Stain Solid Color Water Based
Euclid Chemical Tammscoat
Euclid Chemical Tammscoat 35

**92. Concrete Staining Multi-Color B-40-870, Item 517.1015.S.0001; R-40-525, Item 517.1015.S.0002; R-40-529, Item 517.1015.S.0003; R-40-532, Item 517.1015.S.0004; R-40-534, Item 517.1015.S.0005; R-40-540, Item 517.1015.S.0006; Minor Retaining Wall R-2, Item 517.1015.S.0007; R-40-524, Item 517.1015.S.0008**

*Replace section titled* **B.1 Mortar** *with the following:*

**B.1 Mortar**
Use mortar for sack rubbing the concrete surfaces as given in standard spec 502.3.7.5 or use one of the following products:

| | |
|---|---|
| Preblended, Packaged Type II Cement: | TK Products Tri-Mix<br>BASF MasterSeal 581 Pearl Gray |

The mortar shall contain one of the following acrylic bonding admixtures mixed and applied in accordance to manufacturer's recommendations:

| | |
|---|---|
| Acrylic Bonding Admixture: | TK Products TK-225<br>Thoro Products Achro 60<br>BASF MasterEmaco A660 |

*Replace section titled* **B.2 Concrete Stain** *with the following:*

**B.2 Concrete Stain**
Use concrete stain manufactured for use on exterior concrete surfaces, consisting of a base coat and a pigmented sealer finish coat. Use the following products, or equal as approved by the department, as part of the two coat finish system:

TK Products 5321 Tri-Sheen Concrete Surfacer, Smooth
TK Products 5342 Tri-Sheen Acrylic
TK Products 1450 Natural Look Urethane Anti-Graffiti Primer
ChemMasters Safe-Cure and Seal EPX
Sherwin-Williams H&C Concrete Stain Solid Color Water Based
Euclid Chemical Tammscoat
Euclid Chemical Tammscoat 35

**318. Install Temporary Pavement Marking Reflective Orange Paint 4-Inch, Item SPV.0090.0320; 8-Inch, Item SPV.0090.0322; 24-Inch, Item SPV.0090.0324; Install Temporary Pavement Marking Orange Arrows, Item SPV.0060.0320**

*Replace section titled* **B.1.2 Reflectorized Paint** *with the following:*

**B.1.2 Reflectorized Paint**
*Replace standard spec 649.2.3 with the following:*

The department will furnish water-borne orange paint intended for marking traffic lanes on both concrete and asphalt highways.

Contractor furnished materials include, but are not limited to, the following:

Glass Beads - Furnish glass beads to reflectorize the paint conforming to standard spec 646.2.3.

**333. Fence Decorative Bridge, Item SPV.0090.4400; Fence Decorative Wall, Item SPV.0090.4410**

*Replace paragraph 2 under section titled* **B.1 General** *with the following:*

Blast clean steel, after fabrication, per SSPC-SP 6, and galvanize according to ASTM A 123. Supply all bolts, nuts and washers as factory galvanized according to ASTM A 153. Repair zinc coating damaged during fabrication as specified in standard spec 513.3.3(3). Grind the welded joints shown in the plans to a smooth finish.

*Replace section titled* **B.2 Painting** *with the following:*

**B.2 Two Coat System**
After galvanizing, coat all exterior surfaces of steel fence at field erection and expansion joints with a two coat system as hereinafter provided.

Clean all galvanized surfaces to be painted per SSPC-SP1 to remove chlorides, sulfates, zinc salts, oil, dirt, organic matter and other contaminants. Then brush blast clean the cleaned galvanized surface per SSPC-SP16 to create a slight angular surface profile (1.0 - 1.5 mils suggested) for paint adhesion. Do not fracture the galvanized finish or remove any dry film thickness during the brush blast cleaning process.

Prior to application of the tie-coat, remove visible deposits of oil, grease and other contaminates from the surface per SSPC-SP1, and clean the brush blasted surface of dust, dirt and loose residue conforming to standard spec 517.

After cleaning provide a tie coat from an approved coating system that is specifically intended to be used on a galvanized surface. The tie coat shall etch the galvanized surface and prepare the surface for the top coat. Apply a top coat matching the specified color. Utilize a contrasting color for the tie and top coats. Use a pre-approved top coat that is resistant to the effects of the sun, and is suitable for use in a marine environment. Paint the various decorative fence components with the tie and top coats before final assembly of the fence panels. Do not damage the painted surface during panel assembly or fence installation.

Use one of the qualified paint sources and products given below. An equivalent system may be used with the written approval of the engineer.

| Producer | Coat | Products | Dry Film Minimum Thickness (mils) | Minimum Time Between Coats (hours) |
|---|---|---|---|---|
| Sherwin Williams<br>1051 Permeter Drive,<br>Suite 710<br>Schaumburg, IL 60173<br>847.330.1562 | Tie | Recoatable Epoxy Primer B67-5 Series/B67V5 | 2.0 to 4.0 | 6 |
| | Top | Acrolon 218 HS Polyurethane , B65-650 | 2.0 to 4.0 | NA |
| Carboline<br>350 Hanley Industrial<br>St. Louis, MO 63144<br>314.644.1000 | Tie | Rustbond Penetrating Sealer FC | 1 | 36 |
| | Tie | Carboguard 60 | 4.0 to 6.0 | 10 |
| | Tie | Carboguard 635 | 4.0 to 6.0 | 1 |
| | Top | Carboline 133 LH(satin) | 4 | NA |
| Wasser Corporation<br>4118 B Place NW<br>Suite B<br>Aubum, WA 98001 | Tie | MC-Ferrox B 100 | 3.0 to 5.0 | 8 |
| | Top | MC-Luster 100 | 2.0 to 4.0 | NA |
| PPG Protective and Marine Coatings<br>P.O. Box 192610<br>Little Rock, AR 72219-2610<br>414-339-5084 | Tie | Amercoat 399 | 3.0 to 5.0 | 3 |
| | Top | Amercoat 450H | 2.0 to 4.0 | NA |

**334. Fence Decorative HAST Structure Mounted, Item SPV.0090.4411; Fence Decorative HAST Ground Mounted, Item SPV.0090.0605**

*Replace paragraph 3 under section titled* **B.1 General** *with the following:*

Blast clean steel posts, rails and base plates, after fabrication, per SSPC-SP 6 and galvanize according to ASTM A 123. Supply all bolts, nuts and washers as factory galvanized according to ASTM A 153. Repair zinc coating damaged during fabrication as specified in standard spec 513.3.3(3). Grind the welded joints shown in the plans to a smooth finish.

*Replace section titled* **B.2 Painting** *with the following:*

**B.2 Two Coat System**
After galvanizing, coat all exterior surfaces of steel fence at field erection and expansion joints with a two coat system as hereinafter provided.

Clean all galvanized surfaces to be painted per SSPC-SP1 to remove chlorides, sulfates, zinc salts, oil, dirt, organic matter and other contaminants. Then brush blast clean the cleaned galvanized surface per SSPC-SP16 to create a slight angular surface profile (1.0 - 1.5 mils suggested) for paint adhesion. Do not fracture the galvanized finish or remove any dry film thickness during the brush blast cleaning process.

Prior to application of the tie-coat, remove visible deposits of oil, grease and other contaminates from the surface per SSPC-SP1, and clean the brush blasted surface of dust, dirt and loose residue conforming to standard spec 517.

After cleaning provide a tie coat from an approved coating system that is specifically intended to be used on a galvanized surface. The tie coat shall etch the galvanized surface and prepare the surface for the top coat. Apply a top coat matching the specified color. Utilize a contrasting color for the tie and top coats. Use a pre-approved top coat that is resistant to the effects of the sun, and is suitable for use in a marine environment. Paint the various decorative fence components with the tie and top coats before final assembly of the fence panels. Do not damage the painted surface during panel assembly or fence installation.

Use one of the qualified paint sources and products given below. An equivalent system may be used with the written approval of the engineer.

| Producer | Coat | Products | Dry Film Minimum Thickness (mils) | Minimum Time Between Coats (hours) |
|---|---|---|---|---|
| Sherwin Williams<br>1051 Permeter Drive,<br>Suite 710<br>Schaumburg, IL 60173<br>847.330.1562 | Tie | Recoatable Epoxy Primer B67-5 Series/B67V5 | 2.0 to 4.0 | 6 |
| | Top | Acrolon 218 HS Polyurethane , B65-650 | 2.0 to 4.0 | NA |
| Carboline<br>350 Hanley Industrial<br>St. Louis, MO 63144<br>314.644.1000 | Tie | Rustbond Penetrating Sealer FC | 1 | 36 |
| | Tie | Carboguard 60 | 4.0 to 6.0 | 10 |
| | Tie | Carboguard 635 | 4.0 to 6.0 | 1 |

| | | | | |
|---|---|---|---|---|
| | Top | Carboline 133 LH(satin) | 4 | NA |
| Wasser Corporation<br>4118 B Place NW<br>Suite B<br>Aubum, WA 98001 | Tie | MC-Ferrox B 100 | 3.0 to 5.0 | 8 |
| | Top | MC-Luster 100 | 2.0 to 4.0 | NA |
| PPG Protective and Marine Coatings<br>P.O. Box 192610<br>Little Rock, AR 72219-2610<br>414-339-5084 | Tie | Amercoat 399 | 3.0 to 5.0 | 3 |
| | Top | Amercoat 450H | 2.0 to 4.0 | NA |

**355. Lining 96-Inch Reinforced Concrete Storm Sewer Pipe, Item SPV.0090.8090**

*Replace section titled* **B Materials** *with the following:*

**B Materials**

Contractor has the option to line the pipe with:

a) A cold-formed two-flange steel tunnel liner plates, fabricated to permit in-place assembly of a continuous circular steel support system. Additional requirements include the placement of grout in any void spaces between the tunnel liner plates and the placement of a paved concrete insert.

**Or**

b) A high-strength, high build, fiber reinforced, geopolymer liner material using a remotely operated spinning applicator, mechanical pumping, or spraying.

**Or**

c) An approved equal.

**389. Concrete Staining Previously Constructed Structure, Item SPV.0165.4785**

*Replace section titled* **B.1 Concrete Stain** *with the following:*

**B.1 Concrete Stain**

Use concrete stain manufactured for use on exterior concrete surfaces, consisting of a base coat and a pigmented sealer finish coat. Use the following products, or equal as approved by the department, as part of the two coat finish system:

TK Products 5321 Tri-Sheen Concrete Surfacer, Smooth
TK Products 5342 Tri-Sheen Acrylic
TK Products 1450 Natural Look Urethane Anti-Graffiti Primer
ChemMasters Safe-Cure and Seal EPX
Sherwin-Williams H&C Concrete Stain Solid Color Water Based
Euclid Chemical Tammscoat
Euclid Chemical Tammscoat 35

*Replace section titled* **B.2 Mortar** *with the following:*

**B.2 Mortar**

Use mortar for the modified concrete surface finish as specified in 502.3.7.5 or use one of the following products:

| | |
|---|---|
| Preblended, Packaged Type II Cement: | TK Products Tri-Mix<br>BASF MasterSeal 581 Pearl Gray |

The mortar shall contain one of the following acrylic bonding admixtures mixed and applied in accordance to manufacturer's recommendations:

| | |
|---|---|
| Acrylic Bonding Admixture: | TK Products TK-225<br>Thoro Products Achro 60<br>BASF MasterEmaco A660 |

*Replace paragraph 1 under the section titled* **C.2 Modified Surface Finish** *with the following:*

Provide a modified surface finish to all cast in place concrete surfaces by filling all air holes as the engineer directs using mortar as defined in B.2. Before applying the modified surface finish, saturate the concrete surface with water.

**390. Concrete Staining Multi-Color Previously Constructed Structure, Item SPV.0165.4786**

*Replace section titled* **B.1 Concrete Stain** *with the following:*

**B.1 Concrete Stain**
Use concrete stain manufactured for use on exterior concrete surfaces, consisting of a base coat and a pigmented sealer finish coat. Use the following products, or equal as approved by the department, as part of the two coat finish system:

TK Products 5321 Tri-Sheen Concrete Surfacer, Smooth
TK Products 5342 Tri-Sheen Acrylic
TK Products 1450 Natural Look Urethane Anti-Graffiti Primer
ChemMasters Safe-Cure and Seal EPX
Sherwin-Williams H&C Concrete Stain Solid Color Water Based
Euclid Chemical Tammscoat
Euclid Chemical Tammscoat 35

*Replace section titled* **B.2 Mortar** *with the following:*

**B.2 Mortar**
Use mortar for the modified concrete surface finish as specified in 502.3.7.5 or use one of the following products:

| | |
|---|---|
| Preblended, Packaged Type II Cement: | TK Products Tri-Mix<br>BASF MasterSeal 581 Pearl Gray |

The mortar shall contain one of the following acrylic bonding admixtures mixed and applied in accordance to manufacturer's recommendations:

| | |
|---|---|
| Acrylic Bonding Admixture: | TK Products TK-225<br>Thoro Products Achro 60<br>BASF MasterEmaco A660 |

*Replace paragraph 1 under the section titled* **C.2 Modified Surface Finish** *with the following:*

Provide a modified surface finish to all cast in place concrete surfaces by filling all air holes as the engineer directs using mortar as defined in B.2. Before applying the modified surface finish, saturate the concrete surface with water.

## 409. Maintaining and Removing Crash Cushion, Item SPV.0060.0430

### A Description
This special provision describes maintaining and removing existing crash cushions in accordance to the pertinent provisions of section 204 of the standard specifications and as hereinafter provided.

### B (Vacant)

### C Construction
Maintain crash cushions left in place from a previous contract until removal. The existing crash cushions shall be removed as shown on the plans. The contractor shall include the cost of any and all methods that may be needed for the maintenance and for the expected removal of the materials under this bid item.

### D Measurement
The department will measure Maintaining and Removing Crash Cushion by the unit acceptably removed.

### E Payment
The department will pay for the measured quantity at the contract unit price under the following bid item:

| ITEM NUMBER | DESCRIPTION | UNIT |
|---|---|---|
| SPV.0060.0430 | Maintaining and Removing Crash Cushion | Each |

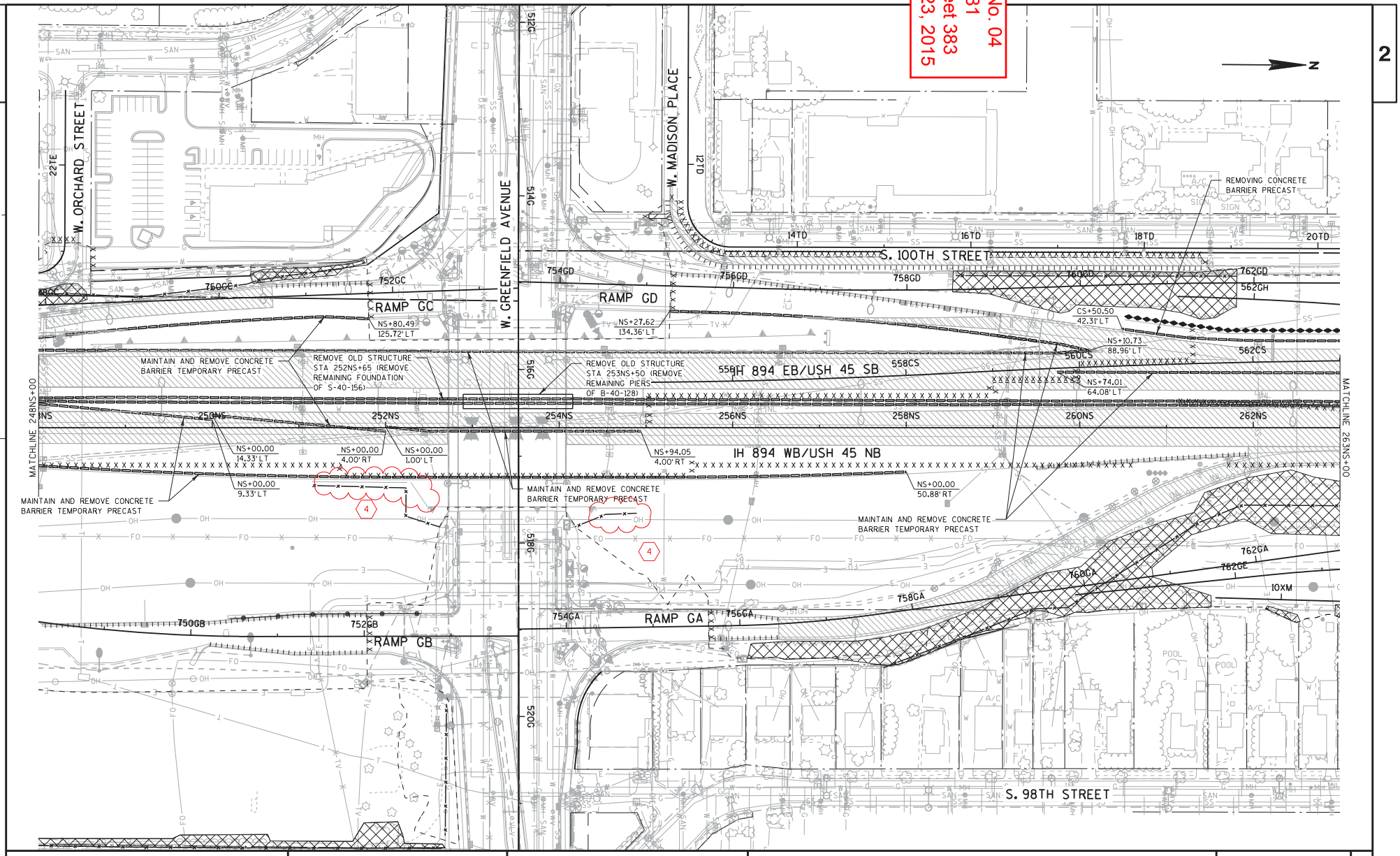
Payment is full compensation for maintaining and removing existing crash cushions; and for furnishing all labor, tools, equipment, materials, and incidentals necessary to complete the contract work.

**Schedule of Items**
Attached, dated September 23, 2015, are the revised Schedule of Items Pages 6, 12, 75, 95, 100, 101, 119, and 128 – 142.

**Plan Sheets**
The following 8½ x 11-inch sheets are attached and made part of the plans for this proposal:
Revised: 383, 1627-1630, 1636, 1837, 1904, and 1905
Added: 1904A

END OF ADDENDUM

Addendum No. 04
ID 1060-33-81
Revised Sheet 383
September 23, 2015




| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | REMOVAL PLANS | SHEET 383 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\021105_rm.dgn PLOT DATE : 21-SEP-2015 16:30 PLOT BY : mscojl PLOT NAME : 021105_rm PLOT SCALE : 100:1

Addendum No. 04
ID 1060-33-81
Revised Sheet 1627
September 23, 2015

## REMOVING CONCRETE BARRIER

| CATEGORY | STAGE | ROADWAY | FROM STATION | FROM OFFSET | TO STATION | TO OFFSET | 204.0157 REMOVING CONCRETE BARRIER LF | SPV.0090.0011 REMOVING CONCRETE BARRIER PRECAST LF | SPV.0090.0124 MAINTAIN AND REMOVE CONCRETE BARRIER TEMPORARY PRECAST LF | SPV.0060.0430 MAINTAINING AND REMOVING CRASH CUSHION EACH |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **MAINLINE** | | | | | | | | |
| 1000 | 1 | IH 94 EB | | | | | | | | |
| | | | 101EW+69 | 3' RT | 111EW+43 | 3' RT | 974 | -- | -- | -- |
| | | | 113EW+02 | 4' RT | 125EW+93 | 35' LT | 1,294 | -- | -- | -- |
| | | IH 94 WB | | | | | | | | |
| | | | 113EW+02 | 3' LT | 125EW+73 | 40' LT | 1,276 | -- | -- | -- |
| | | SUBTOTALS | | | | | 3,544 | -- | -- | -- |
| | | **MAINLINE** | | | | | | | | |
| 1000 | 2 | USH 45 NB | | | | | | | | |
| | | | 190NS+20 | 69' RT | 190NS+31 | 69' RT | 10 | -- | -- | -- |
| | | | 196NS+02 | 66' RT | 203NS+30 | 59' RT | 720 | -- | -- | -- |
| | | | 218NS+05 | 65' RT | 228NS+93 | 63' RT | 1,088 | -- | -- | -- |
| | | | 230NS+71 | 61' RT | 231NS+21 | 61' RT | 51 | -- | -- | -- |
| | | | 248NS+00 | 44' RT | 258NS+00 | 51' RT | -- | -- | 1,000 | 1 |
| | | | 334NS+99 | 150' RT | 340NS+09 | 147' RT | 534 | -- | -- | -- |
| | | | 340NS+09 | 147' RT | 346NS+00 | 86' RT | 618 | -- | -- | -- |
| | | | 346NS+00 | 86' RT | 347NS+54 | 61' RT | 160 | -- | -- | -- |
| | | | 348NS+28 | 49' RT | 353NS+31 | 7' RT | -- | -- | 510 | -- |
| | | USH 45 SB | | | | | | | | |
| | | | 333NS+40 | 5' LT | 336NS+25 | 9' LT | -- | -- | 286 | 1 |
| | | | 335NS+31 | 83' RT | 336NS+29 | 76' RT | 101 | -- | -- | -- |
| | | | 336NS+10 | 148' RT | 340NS+61 | 140' RT | 473 | -- | -- | -- |
| | | | 340NS+61 | 140' RT | 345NS+50 | 90' RT | 511 | -- | -- | -- |
| | | IH 94 EB | | | | | | | | |
| | | | 97EW+77 | 64' RT | 99EW+50 | 62' RT | 173 | -- | -- | -- |
| | | **RAMPS** | | | | | | | | |
| | | RAMP WS | | | | | | | | |
| | | | 584WS+45 | 42' LT | 585WS+78 | 54' LT | -- | 141 | -- | -- |
| | | | 584WS+51 | 13' LT | 585WS+62 | 27' LT | -- | 115 | -- | -- |
| | | | 587WS+28 | 34' LT | 591WS+31 | 11' LT | -- | 412 | -- | -- |
| | | | 587WS+35 | 59' LT | 587WS+56 | 59' LT | 22 | -- | -- | -- |
| | | RAMP CS | | | | | | | | |
| | | | 571CS+00 | 21' LT | 579CS+50 | 11' LT | -- | 851 | -- | -- |
| | | RAMP GB | | | | | | | | |
| | | | 747GB+40 | 9' RT | 748GB+18 | 3' RT | -- | -- | 79 | 1 |
| | | RAMP SC | | | | | | | | |
| | | | 537SC+88 | 52' LT | 539SC+47 | 5' RT | -- | -- | 175 | 1 |
| | | | 539SC+83 | 43' LT | 542SC+66 | 20' LT | -- | -- | 287 | 1 |
| | | SUBTOTALS | | | | | 4,461 | 1,519 | 2,337 | 5 |

4

## REMOVING CONCRETE BARRIER (CONTINUED)

| CATEGORY | STAGE | ROADWAY | FROM STATION | FROM OFFSET | TO STATION | TO OFFSET | 204.0157 REMOVING CONCRETE BARRIER LF | SPV.0090.0011 REMOVING CONCRETE BARRIER PRECAST LF | SPV.0090.0124 MAINTAIN AND REMOVE CONCRETE BARRIER TEMPORARY PRECAST LF | SPV.0060.0430 MAINTAINING AND REMOVING CRASH CUSHION EACH |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **MAINLINE** | | | | | | | | |
| 1000 | 3 | USH 45 NB | | | | | | | | |
| | | | 206NS+00 | 1' RT | 228NS+84 | 3' RT | 2,284 | -- | -- | -- |
| | | | 230NS+63 | 2' RT | 234NS+00 | 0' RT/LT | 337 | -- | -- | -- |
| | | | 252NS+00 | 1' LT | 254NS+94 | 4' RT | -- | -- | 294 | -- |
| | | | 265NS+03 | 23' LT | 278NS+89 | 106' RT | -- | -- | 1,386 | -- |
| | | | 266NS+63 | 49' RT | 273NS+00 | 111' RT | -- | -- | 640 | 1 |
| | | | 272NS+93 | 64' RT | 274NS+40 | 91' RT | -- | -- | 150 | -- |
| | | | 272NS+93 | 58' RT | 281NS+51 | 169' RT | -- | -- | 849 | 2 |
| | | | 273NS+00 | 111' RT | 276NS+83 | 183' RT | -- | -- | 385 | -- |
| | | | 314NS+63 | 53' RT | 326NS+89 | 52' RT | -- | -- | 1,229 | -- |
| | | USH 45 SB | | | | | | | | |
| | | | 270NS+75 | 2' LT | 279NS+26 | 43' RT | -- | -- | 849 | 1 |
| | | | 290NS+81 | 25' RT | 307NS+30 | 7' LT | -- | -- | 1,651 | -- |
| | | | 319NS+80 | 3' LT | 320NS+79 | 16' LT | -- | -- | 100 | 1 |
| | | IH 94 EB | | | | | | | | |
| | | | 78EW+47 | 2' RT | 79EW+60 | 2' RT | 100 | -- | -- | -- |
| | | | 86EW+03 | 2' RT | 93EW+89 | 2' RT | 786 | -- | -- | -- |
| | | | 94EW+99 | 2' RT | 99EW+47 | 3' RT | 448 | -- | -- | -- |
| | | | 136EW+59 | 5' RT | 147EW+00 | 59' RT | -- | -- | 1,035 | 1 |
| | | | 142EW+35 | 11' LT | 147EW+00 | 15' RT | -- | -- | 465 | 1 |
| | | | 205EW+51 | 71' RT | 209EW+00 | 53' RT | -- | -- | 350 | 1 |
| | | | 207EW+00 | 7' RT | 208EW+94 | 3' RT | -- | -- | 194 | 1 |
| | | IH 94 WB | | | | | | | | |
| | | | 78EW+47 | 2' LT | 79EW+60 | 2' LT | 100 | -- | -- | -- |
| | | | 86EW+03 | 2' LT | 93EW+88 | 2' LT | 785 | -- | -- | -- |
| | | | 203EW+72 | 64' LT | 206EW+71 | 6' LT | 305 | -- | -- | -- |
| | | **RAMPS** | | | | | | | | |
| | | RAMP NE | | | | | | | | |
| | | | 521NE+52 | 53' LT | 528NE+78 | 200' LT | -- | -- | 751 | 1 |
| | | | 533NE+48 | 397' LT | 543NE+99 | 204' LT | -- | -- | 765 | -- |
| | | | 533NE+49 | 378' LT | 542NE+24 | 259' LT | -- | -- | 635 | -- |
| | | | 534NE+15 | 299' LT | 540NE+90 | 323' LT | 470 | -- | -- | -- |
| | | | 537NE+42 | 327' LT | 543NE+82 | 179' LT | 458 | -- | -- | -- |
| | | RAMP SL | | | | | | | | |
| | | | 446SL+28 | 25' RT | 453SL+47 | 73' LT | -- | -- | 739 | 1 |
| | | | 446SL+37 | 13' LT | 451SL+56 | 105' LT | -- | -- | 508 | -- |
| | | **LOCAL ROADS** | | | | | | | | |
| | | W. WISCONSIN AVENUE | | | | | | | | |
| | | | 26WX+89 | 56' LT | 26WX+89 | 26' RT | -- | -- | 75 | -- |

4

(CONTINUED ON NEXT SHEET)



FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\030201_mq_pav.ppt PLOT DATE : 9/22/2015 3:02:18 PM PLOT BY : MSCCEJ PLOT NAME : 030201_mq_pav9 PLOT SCALE : 1:1

Addendum No. 04
ID 1060-33-81
Revised Sheet 1628
September 23, 2015

## REMOVING CONCRETE BARRIER (CONTINUED)

| CATEGORY | STAGE | ROADWAY | FROM STATION | FROM OFFSET | TO STATION | TO OFFSET | 204.0157 REMOVING CONCRETE BARRIER LF | SPV.0090.0011 REMOVING CONCRETE BARRIER PRECAST LF | SPV.0090.0124 MAINTAIN AND REMOVE CONCRETE BARRIER TEMPORARY PRECAST LF | SPV.0060.0430 MAINTAINING AND REMOVING CRASH CUSHION EACH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1000 | 3 | N. 97TH STREET | | | | | | | | |
| | | | 46TT+48 | 28' RT | 49TT+46 | 12' RT | -- | -- | 333 | -- |
| | | SUBTOTALS | | | | | 6,073 | -- | 13,383 | 11 |
| | | **MAINLINE** | | | | | | | | |
| 1000 | 4 | USH 45 NB | | | | | | | | |
| | | | 274NS+40 | 91' RT | 275NS+96 | 124' RT | -- | -- | 159 | -- |
| | | | 293NS+16 | 438' RT | 296NS+95 | 477' RT | 382 | -- | -- | -- |
| | | | 293NS+27 | 480' RT | 297NS+63 | 511' RT | 438 | -- | -- | -- |
| | | | 313NS+58 | 71' RT | 314NS+63 | 53' RT | -- | -- | 108 | -- |
| | | | 320NS+00 | 87' RT | 332NS+97 | 188' RT | -- | -- | 1,303 | -- |
| | | | 326NS+89 | 52' RT | 333NS+84 | 142' RT | -- | -- | 697 | -- |
| | | | 333NS+40 | 197' RT | 335NS+13 | 212' RT | 174 | -- | -- | -- |
| | | | 333NS+84 | 142' RT | 334NS+99 | 150' RT | 115 | -- | -- | -- |
| | | | 341NS+94 | 191' RT | 350NS+08 | 144' RT | -- | -- | 861 | -- |
| | | | 349NS+42 | 107' RT | 350NS+64 | 113' RT | -- | -- | 127 | 1 |
| | | | 349NS+42 | 104' RT | 353NS+31 | 93' RT | -- | -- | 403 | -- |
| | | USH 45 SB | | | | | | | | |
| | | | 298NS+59 | 63' RT | 307NS+32 | 22' RT | -- | -- | 878 | -- |
| | | | 333NS+85 | 135' RT | 336NS+10 | 148' RT | 228 | -- | -- | -- |
| | | | 334NS+89 | 83' RT | 335NS+31 | 83' RT | 42 | -- | -- | -- |
| | | IH 94 WB | | | | | | | | |
| | | | 175EW+08 | 2' LT | 179EW+20 | 2' LT | -- | -- | 414 | -- |
| | | **RAMPS** | | | | | | | | |
| | | RAMP WS | | | | | | | | |
| | | | 557WS+50 | 55' LT | 582WS+69 | 87' LT | -- | -- | 2,519 | -- |
| | | | 561WS+80 | 117' LT | 580WS+54 | 75' LT | -- | -- | 1,849 | -- |
| | | RAMP WN | | | | | | | | |
| | | | 592WN+46 | 289' RT | 595WN+56 | 279' RT | 374 | -- | -- | -- |
| | | | 594WN+90 | 263' RT | 596WN+03 | 254' RT | 135 | -- | -- | -- |
| | | RAMP NE | | | | | | | | |
| | | | 546NE+96 | 98' LT | 548NE+18 | 72' LT | 113 | -- | -- | -- |
| | | RAMP BA | | | | | | | | |
| | | | 724BA+57 | 15' RT | 724BA+57 | 23' LT | -- | -- | 38 | -- |
| | | **LOCAL ROADS** | | | | | | | | |
| | | W. WISCONSIN AVENUE | | | | | | | | |
| | | | 31WX+55 | 39' LT | 31WX+55 | 24' RT | -- | -- | 63 | -- |
| | | SUBTOTALS | | | | | 2,001 | -- | 9,419 | 1 |

4

## REMOVING CONCRETE BARRIER (CONTINUED)

| CATEGORY | STAGE | ROADWAY | FROM STATION | FROM OFFSET | TO STATION | TO OFFSET | 204.0157 REMOVING CONCRETE BARRIER LF | SPV.0090.0011 REMOVING CONCRETE BARRIER PRECAST LF | SPV.0090.0124 MAINTAIN AND REMOVE CONCRETE BARRIER TEMPORARY PRECAST LF | SPV.0060.0430 MAINTAINING AND REMOVING CRASH CUSHION EACH |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **MAINLINE** | | | | | | | | |
| 1000 | 5 | IH 94 EB | | | | | | | | |
| | | | 183EW+93 | 276' RT | 187EW+04 | 317' RT | -- | 343 | -- | 1 |
| | | | 184EW+09 | 224' RT | 186EW+11 | 252' RT | -- | 219 | -- | -- |
| | | | 186EW+33 | 306' RT | 188EW+93 | 319' RT | -- | -- | 272 | -- |
| | | | 186EW+44 | 257' RT | 189EW+32 | 232' RT | -- | -- | 300 | -- |
| | | | 189EW+58 | 328' RT | 191EW+68 | 309' RT | -- | 212 | -- | -- |
| | | | 190EW+26 | 283' RT | 192EW+35 | 257' RT | -- | 211 | -- | -- |
| | | **RAMPS** | | | | | | | | |
| | | RAMP WS | | | | | | | | |
| | | | 580WS+54 | 75' LT | 583WS+38 | 215' LT | -- | -- | 359 | -- |
| | | | 582WS+65 | 105' LT | 586WS+76 | 174' LT | -- | -- | 503 | 1 |
| | | | 582WS+69 | 87' LT | 586WS+33 | 152' LT | -- | -- | 434 | -- |
| | | RAMP EN | | | | | | | | |
| | | | 522EN+43 | 38' RT | 523EN+27 | 49' RT | 80 | -- | -- | -- |
| | | | 519EN+28 | 9' RT | 522EN+52 | 32' RT | -- | -- | 323 | -- |
| | | RAMP SE | | | | | | | | |
| | | | 593SE+83 | 100' RT | 601SE+64 | 38' RT | -- | -- | 746 | 1 |
| | | RAMP FC | | | | | | | | |
| | | | 801FC+18 | 39' LT | 807FC+64 | 32' LT | -- | -- | 651 | 1 |
| | | SUBTOTALS | | | | | 80 | 985 | 3,588 | 4 |
| | | **MAINLINE** | | | | | | | | |
| 1000 | 6 | USH 45 NB | | | | | | | | |
| | | | 234NS+00 | 0' RT/LT | 259NS+65 | 26' LT | 2,564 | -- | -- | -- |
| | | | 247NS+01 | 29' LT | 248NS+00 | 23' LT | -- | -- | 99 | 1 |
| | | | 248NS+00 | 28' LT | 250NS+00 | 9' LT | -- | -- | 201 | -- |
| | | | 250NS+00 | 14' LT | 252NS+00 | 4' RT | -- | -- | 201 | -- |
| | | | 259NS+65 | 26' LT | 264NS+93 | 25' LT | 528 | -- | -- | -- |
| | | | 259NS+74 | 64' LT | 276NS+00 | 3' RT | -- | -- | 1,628 | -- |
| | | | 280NS+86 | 215' RT | 287NS+44 | 259' RT | -- | -- | 627 | -- |
| | | | 280NS+91 | 255' RT | 290NS+43 | 430' RT | -- | -- | 942 | -- |
| | | | 286NS+95 | 196' RT | 291NS+94 | 403' RT | 540 | -- | -- | -- |
| | | | 287NS+07 | 246' RT | 287NS+37 | 258' RT | 32 | -- | -- | -- |
| | | | 289NS+28 | 332' RT | 292NS+05 | 445' RT | 299 | -- | -- | -- |
| | | | 299NS+68 | 466' RT | 300NS+83 | 446' RT | 118 | -- | -- | 1 |
| | | | 299NS+75 | 509' RT | 299NS+98 | 508' RT | 23 | -- | -- | -- |
| | | | 311NS+13 | 134' RT | 313NS+58 | 71' RT | -- | -- | 255 | -- |
| | | USH 45 SB | | | | | | | | |
| | | | 202NS+09 | 61' LT | 204NS+64 | 61' LT | 257 | -- | -- | -- |
| | | | 214NS+49 | 65' LT | 221NS+34 | 62' LT | 684 | -- | -- | -- |
| | | | 216NS+99 | 2' LT | 228NS+84 | 1' LT | 1,184 | -- | -- | -- |
| | | | 228NS+60 | 60' LT | 228NS+75 | 61' LT | 15 | -- | -- | -- |

4

(CONTINUED ON NEXT SHEET)

Addendum No. 04
ID 1060-33-81
Revised Sheet 1629
September 23, 2015

## REMOVING CONCRETE BARRIER (CONTINUED)

| CATEGORY | STAGE | ROADWAY | FROM STATION | FROM OFFSET | TO STATION | TO OFFSET | 204.0157 REMOVING CONCRETE BARRIER LF | SPV.0090.0011 REMOVING CONCRETE BARRIER PRECAST LF | SPV.0090.0124 MAINTAIN AND REMOVE CONCRETE BARRIER TEMPORARY PRECAST LF | SPV.0060.0430 MAINTAINING AND REMOVING CRASH CUSHION EACH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1000 | 6 | | 230NS+55 | 61' LT | 235NS+94 | 80' LT | 536 | -- | -- | -- |
| | | | 230NS+63 | 2' LT | 260NS+05 | 31' LT | 2,941 | -- | -- | -- |
| | | | 247NS+48 | 89' LT | 260NS+11 | 89' LT | -- | -- | 1,263 | -- |
| | | | 260NS+05 | 31' LT | 262NS+11 | 30' LT | 206 | -- | -- | -- |
| | | | 262NS+11 | 30' LT | 265NS+56 | 29' LT | 345 | -- | -- | -- |
| | | | 265NS+56 | 32' RT | 270NS+75 | 2' LT | -- | -- | 520 | -- |
| | | | 271NS+34 | 45' LT | 273NS+58 | 27' LT | -- | -- | 225 | -- |
| | | | 272NS+75 | 27' LT | 279NS+11 | 21' LT | 638 | -- | -- | -- |
| | | | 279NS+29 | 31' LT | 279NS+45 | 32' LT | 16 | -- | -- | -- |
| | | | 280NS+80 | 39' LT | 284NS+77 | 89' RT | 406 | -- | -- | -- |
| | | | 284NS+53 | 136' LT | 284NS+68 | 138' LT | 16 | -- | -- | -- |
| | | | 286NS+20 | 108' LT | 288NS+57 | 131' LT | 239 | -- | -- | -- |
| | | | 286NS+98 | 170' LT | 288NS+40 | 179' LT | 142 | -- | -- | -- |
| | | | 289NS+78 | 183' LT | 291NS+33 | 181' LT | 155 | -- | -- | -- |
| | | | 289NS+98 | 131' LT | 291NS+74 | 109' LT | 177 | -- | -- | -- |
| | | | 294NS+78 | 139' LT | 295NS+02 | 135' LT | 25 | -- | -- | -- |
| | | | 295NS+25 | 84' LT | 295NS+46 | 80' LT | 21 | -- | -- | -- |
| | | | 296NS+82 | 96' LT | 298NS+39 | 63' LT | 160 | -- | -- | -- |
| | | | 297NS+24 | 38' LT | 298NS+02 | 18' LT | 81 | -- | -- | -- |
| | | | 309NS+99 | 31' LT | 313NS+24 | 57' LT | -- | -- | 325 | 1 |
| | | IH 94 EB | | | | | | | | |
| | | | 129EW+00 | 47' LT | 137EW+76 | 64' LT | 888 | -- | -- | -- |
| | | | 154EW+58 | 7' LT | 156EW+58 | 12' LT | -- | -- | 200 | -- |
| | | | 156EW+58 | 13' LT | 159EW+57 | 20' LT | 299 | -- | -- | -- |
| | | IH 94 WB | | | | | | | | |
| | | | 94EW+99 | 1' LT | 99EW+46 | 3' LT | 447 | -- | -- | -- |
| | | | 99EW+31 | 62' LT | 99EW+42 | 62' LT | 11 | -- | -- | -- |
| | | | 101EW+69 | 3' LT | 111EW+43 | 4' LT | 974 | -- | -- | -- |
| | | | 113EW+00 | 63' LT | 125EW+35 | 90' LT | -- | -- | 1,250 | -- |
| | | | 127EW+83 | 108' LT | 130EW+27 | 117' LT | 250 | -- | -- | -- |
| | | | 128EW+89 | 53' LT | 137EW+76 | 70' LT | 901 | -- | -- | -- |
| | | | 137EW+76 | 71' LT | 175EW+08 | 2' LT | -- | -- | 3,739 | -- |
| | | | 141EW+73 | 119' LT | 146EW+66 | 115' LT | -- | -- | 506 | 1 |
| | | | 146EW+78 | 60' LT | 148EW+55 | 61' LT | 179 | -- | -- | -- |
| | | | 146EW+79 | 56' LT | 148EW+55 | 57' LT | 178 | -- | -- | -- |
| | | | 148EW+55 | 57' LT | 156EW+47 | 67' LT | -- | -- | 792 | -- |
| | | | 156EW+47 | 79' LT | 157EW+97 | 82' LT | 150 | -- | -- | -- |
| | | | 156EW+47 | 74' LT | 158EW+02 | 77' LT | 155 | -- | -- | -- |
| | | | 157EW+96 | 81' LT | 160EW+96 | 97' LT | -- | -- | 300 | 1 |
| | | | 175EW+94 | 34' LT | 182EW+50 | 103' LT | -- | -- | 652 | -- |
| | | | 179EW+20 | 2' LT | 189EW+19 | 268' LT | -- | -- | 1,012 | -- |
| | | | 182EW+53 | 92' LT | 189EW+28 | 307' LT | -- | -- | 683 | -- |
| | | | 189EW+19 | 267' LT | 191EW+02 | 287' LT | 185 | -- | -- | -- |
| | | | 189EW+28 | 308' LT | 191EW+66 | 331' LT | 239 | -- | -- | -- |
| | | | 195EW+28 | 310' LT | 198EW+69 | 233' LT | -- | 386 | -- | -- |
| | | | 195EW+29 | 270' LT | 196EW+38 | 239' LT | -- | 119 | -- | -- |
| | | | 195EW+40 | 250' LT | 196EW+40 | 236' LT | -- | 107 | -- | -- |
| | | | 195EW+48 | 219' LT | 198EW+23 | 180' LT | -- | 300 | -- | -- |
| | | | 198EW+23 | 180' LT | 203EW+72 | 64' LT | 581 | -- | -- | -- |

## REMOVING CONCRETE BARRIER (CONTINUED)

| CATEGORY | STAGE | ROADWAY | FROM STATION | FROM OFFSET | TO STATION | TO OFFSET | 204.0157 REMOVING CONCRETE BARRIER LF | SPV.0090.0011 REMOVING CONCRETE BARRIER PRECAST LF | SPV.0090.0124 MAINTAIN AND REMOVE CONCRETE BARRIER TEMPORARY PRECAST LF | SPV.0060.0430 MAINTAINING AND REMOVING CRASH CUSHION EACH |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **RAMPS** | | | | | | | | |
| 1000 | 6 | RAMP SW | | | | | | | | |
| | | | 561SW+53 | 6' LT | 564SW+81 | 7' RT | -- | -- | 329 | -- |
| | | | 573SW+02 | 15' LT | 578SW+56 | 32' LT | -- | -- | 555 | -- |
| | | RAMP CS | | | | | | | | |
| | | | 560CS+51 | 42' LT | 568CS+00 | 21' LT | -- | 752 | -- | -- |
| | | | 568CS+00 | 21' LT | 571CS+00 | 21' LT | -- | 300 | -- | -- |
| | | RAMP NE | | | | | | | | |
| | | | 536NE+95 | 8' LT | 536NE+97 | 29' RT | 38 | -- | -- | -- |
| | | | 528NE+78 | 200' LT | 531NE+13 | 286' LT | -- | -- | 251 | -- |
| | | RAMP SE | | | | | | | | |
| | | | 588SE+89 | 40' RT | 582SE+21 | 80' RT | -- | 318 | -- | 2 |
| | | | 590SE+41 | 85' RT | 592SE+20 | 103' RT | 167 | -- | -- | -- |
| | | RAMP ES | | | | | | | | |
| | | | 611ES+07 | 7' LT | 616ES+04 | 17' RT | -- | -- | 500 | 1 |
| | | RAMP GC | | | | | | | | |
| | | | 747GC+38 | 40' RT | 751GC+71 | 29' RT | -- | -- | 434 | -- |
| | | RAMP GD | | | | | | | | |
| | | | 755GD+28 | 29' RT | 760GD+07 | 75' RT | -- | -- | 485 | 1 |
| | | RAMP SA | | | | | | | | |
| | | | 559SA+71 | 14' RT | 572SA+90 | 12' RT | -- | -- | 1,327 | 1 |
| | | | 563SA+04 | 1' LT | 566SA+95 | 30' RT | -- | -- | 395 | -- |
| | | RAMP SD | | | | | | | | |
| | | | 541SD+32 | 1' LT | 542SD+81 | 3' RT | 149 | -- | -- | |
| | | | 542SD+06 | 22' RT | 546SD+15 | 32' RT | -- | -- | 421 | -- |
| | | | 542SD+81 | 4' RT | 546SD+15 | 18' LT | -- | -- | 336 | -- |
| | | | | | | | | | | -- |
| | | SUBTOTALS | | | | | 18,139 | 2,282 | 20,453 | 10 |
| | | **MAINLINE** | | | | | | | | |
| 1000 | 7 | USH 45 NB | | | | | | | | |
| | | | 191NS+50 | 2' RT | 196NS+49 | 2' RT | 499 | -- | -- | -- |
| | | | 196NS+49 | 2' RT | 200NS+23 | 1' RT | 374 | -- | -- | -- |
| | | | 200NS+23 | 1' RT | 206NS+00 | 1' RT | 577 | -- | -- | -- |
| | | | 304NS+49 | 359' RT | 305NS+87 | 317' RT | -- | -- | 150 | -- |
| | | | 307NS+34 | 262' RT | 311NS+13 | 134' RT | -- | -- | 409 | 1 |
| | | | 310NS+33 | 218' RT | 320NS+00 | 87' RT | -- | -- | 993 | -- |
| | | USH 45 SB | | | | | | | | |
| | | | 191NS+50 | 2' LT | 196NS+49 | 2' LT | 499 | -- | -- | -- |
| | | | 196NS+49 | 2' LT | 200NS+23 | 2' LT | 374 | -- | -- | -- |

(CONTINUED ON NEXT SHEET)

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | MISCELLANEOUS QUANTITIES | SHEET: 1629 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\030201_mq_pav.ppt PLOT DATE : 9/22/2015 3:02:18 PM PLOT BY : MSCCEJ PLOT NAME : 030201_mq_pav11 PLOT SCALE : 1:1

## REMOVING CONCRETE BARRIER (CONTINUED)

| CATEGORY | STAGE | ROADWAY | FROM STATION | FROM OFFSET | TO STATION | TO OFFSET | 204.0157 REMOVING CONCRETE BARRIER LF | SPV.0090.0011 REMOVING CONCRETE BARRIER PRECAST LF | SPV.0090.0124 MAINTAIN AND REMOVE CONCRETE BARRIER TEMPORARY PRECAST LF | SPV.0060.0430 MAINTAINING AND REMOVING CRASH CUSHION EACH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1000 | 7 | | 200NS+23 | 2' LT | 207NS+58 | 2' LT | 735 | -- | -- | -- |
| | | | 207NS+58 | 2' LT | 216NS+99 | 2' LT | 941 | -- | -- | -- |
| | | IH 94 EB | | | | | | | | |
| | | | 147EW+00 | 57' RT | 151EW+50 | 64' RT | -- | -- | 448 | -- |
| | | | 147EW+00 | 15' RT | 154EW+00 | 10' RT | -- | -- | 700 | -- |
| | | **RAMPS** | | | | | | | | |
| | | RAMP NE | | | | | | | | |
| | | | 531NE+14 | 286' LT | 533NE+49 | 378' LT | -- | -- | 252 | -- |
| | | RAMP EN | | | | | | | | |
| | | | 518EN+29 | 13' RT | 519EN+28 | 9' RT | -- | -- | 99 | -- |
| | | SUBTOTALS | | | | | 3,999 | -- | 3,051 | 1 |
| | | **MAINLINE** | | | | | | | | |
| 1000 | 8 | USH 45 NB | | | | | | | | |
| | | | 275NS+96 | 124' RT | 279NS+76 | 199' RT | -- | -- | 372 | -- |
| | | USH 45 SB | | | | | | | | |
| | | | 287NS+46 | 71' RT | 289NS+82 | 71' RT | -- | -- | 236 | -- |
| | | | 288NS+27 | 9' RT | 289NS+53 | 9' RT | -- | -- | 126 | -- |
| | | | 290NS+66 | 9' RT | 291NS+73 | 9' RT | -- | -- | 106 | -- |
| | | | 290NS+96 | 71' RT | 292NS+14 | 83' RT | -- | -- | 119 | -- |
| | | | 294NS+88 | 9' RT | 296NS+40 | 9' RT | -- | -- | 152 | -- |
| | | | 295NS+29 | 83' RT | 296NS+60 | 83' RT | -- | -- | 131 | -- |
| | | | 297NS+73 | 83' RT | 298NS+02 | 83' RT | -- | -- | 29 | -- |
| | | **RAMPS** | | | | | | | | |
| | | RAMP BB | | | | | | | | |
| | | | 822BB+77 | 20' RT | 822BB+79 | 17' LT | -- | -- | 38 | -- |
| | | RAMP BC | | | | | | | | |
| | | | 721BC+05 | 20' RT | 721BC+06 | 19' LT | -- | -- | 38 | -- |
| | | RAMP FC | | | | | | | | |
| | | | 811FC+82 | 0' LT/RT | 816FC+80 | 40' LT | -- | -- | 500 | 1 |
| | | SUBTOTALS | | | | | -- | -- | 1,847 | 1 |
| | | **MAINLINE** | | | | | | | | |
| 1000 | 9 | USH 45 NB | | | | | | | | |
| | | | 307NS+30 | 7' LT | 309NS+99 | 31' LT | -- | -- | 269 | -- |
| | | | 307NS+32 | 22' RT | 311NS+20 | 5' LT | -- | -- | 389 | -- |
| | | SUBTOTALS | | | | | -- | -- | 658 | -- |
| | | TOTALS | | | | | 38,297 | 4,786 | 54,736 | 33 |

4

## REMOVING GUARDRAIL

| CATEGORY | STAGE | ROADWAY | FROM STATION | FROM OFFSET | TO STATION | TO OFFSET | 204.0165 REMOVING GUARDRAIL LF |
|---|---|---|---|---|---|---|---|
| | | **MAINLINE** | | | | | |
| 1000 | 2 | IH 894 / USH 45 NB | | | | | |
| | | | 195NS+18 | 69' RT | 196NS+02 | 67' RT | 83 |
| | | | 336NS+29 | 76' RT | 337NS+64 | 58' RT | 140 |
| | | IH 94 EB | | | | | |
| | | | 97EW+09 | 66' RT | 97EW+77 | 64' RT | 68 |
| | | | 108EW+48 | 64' RT | 111EW+32 | 63' RT | 285 |
| | | | 119EW+23 | 60' RT | 126EW+87 | 20' RT | 758 |
| | | **RAMPS** | | | | | |
| | | RAMP WS | | | | | |
| | | | 583WS+79 | 33' LT | 584WS+45 | 42' LT | 69 |
| | | | 583WS+86 | 2' LT | 584WS+51 | 13' LT | 66 |
| | | RAMP WN | | | | | |
| | | | 601WN+82 | 6' RT | 602WN+98 | 5' LT | 118 |
| | | RAMP LA | | | | | |
| | | | 717NS+36 | 17' RT | 718LA+05 | 16' RT | 69 |
| | | RAMP GB | | | | | |
| | | | 750GB+45 | 21' LT | 752GB+66 | 26' LT | 221 |
| | | SUBTOTAL | | | | | 1,877 |
| | | **MAINLINE** | | | | | |
| 1000 | 3 | IH 94 EB | | | | | |
| | | | 93EW+95 | MEDIAN | 94EW+12 | MEDIAN | 17 |
| | | | 94EW+68 | MEDIAN | 94EW+85 | MEDIAN | 17 |
| | | | 130EW+19 | 9' RT | 131EW+12 | 7' RT | 93 |
| | | **RAMPS** | | | | | |
| | | RAMP NE | | | | | |
| | | | 546NE+86 | 70' RT | 548NE+68 | 36' RT | 174 |
| | | SUBTOTAL | | | | | 301 |
| | | **RAMPS** | | | | | |
| 1000 | 4 | RAMP WN | | | | | |
| | | | 590WN+47 | 231' RT | 594WN+89 | 263' RT | 526 |
| | | | 591WN+80 | 284' RT | 592WN+46 | 289' RT | 81 |
| | | SUBTOTAL | | | | | 607 |

Addendum No. 04
ID 1060-33-81
Revised Sheet 1630
September 23, 2015

(CONTINUED ON NEXT SHEET)

Addendum No. 04
ID 1060-33-81
Revised Sheet 1636
September 23, 2015

3

## REMOVING NOISE BARRIER

| CATEGORY | STAGE | ROADWAY | STATION | TO | STATION | OFFSET | 204.9090.S.0001 REMOVING NOISE BARRIER LF |
|---|---|---|---|---|---|---|---|
| | | **MAINLINE** | | | | | |
| 1000 | 2 | IH 894/ USH 45 SB | | | | | |
| | | | 275NS+42 | - | 284NS+42 | LT | 994 |
| | | SUBTOTAL | | | | | 994 |
| | | **MAINLINE** | | | | | |
| 1000 | 6 | IH 894/ USH 45 SB | | | | | |
| | | | 260NS+51 | - | 275NS+42 | LT | 1,571 |
| | | | 203NS+97 | - | 225NS+73 | LT | 2,194 |
| | | SUBTOTAL | | | | | 3,765 |
| | | TOTAL | | | | | 4,759 |

## REMOVING TEMPORARY SHORING LEFT IN PLACE

| CATEGORY | STAGE | LOCATION | STATION | TO | STATION | SPV.0090.4450 REMOVING TEMPORARY SHORING LEFT IN PLACE LF |
|---|---|---|---|---|---|---|
| | | **RAMPS** | | | | |
| 1000 | 2 | RAMP GB | | | | |
| | | | 747GB+46 | - | 748GB+13 | 68 |
| | | SUBTOTAL | | | | 68 |
| | | **RAMPS** | | | | |
| 1000 | 8 | RAMP GE | | | | |
| | | | 776GE+06 | - | 776GE+88 | 270 |
| | | | 780GE+97 | - | 781GE+08 | 19 |
| | | SUBTOTAL | | | | 289 |
| | | TOTAL | | | | 357 |

4

4

## REMOVING OLD SIGN STRUCTURE

| CATEGORY | STAGE | ROADWAY | STATION | SPV.0060 .0016 S-40-100 EACH | SPV.0060 .0017 S-40-133 EACH | SPV.0060 .0018 S-40-156 EACH | SPV.0060 .0019 S-40-128 EACH | SPV.0060 .0020 S-40-213 EACH | SPV.0060 .0021 S-40-214 EACH | SPV.0060 .0023 S-40-309 EACH | SPV.0060 .0024 S-40-35 EACH | SPV.0060 .0026 S-40-78 EACH | SPV.0060 .0027 S-40-99 EACH | SPV.0060 .0028 S-40-995 EACH | SPV.0060 .0029 S-40-996 EACH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1000 | 2 | IH 894/ USH 45 NS | | | | | | | | | | | | | |
| | | | 274NS+37 | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | SUBTOTALS | | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1000 | 3 | IH 894/ USH 45 NS | | | | | | | | | | | | | |
| | | | 209NS+18 | -- | -- | -- | -- | -- | 1 | -- | -- | -- | -- | -- | -- |
| | | | 225NS+94 | -- | -- | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- |
| | | | 244NS+18 | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | | 305NS+49 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1 | -- |
| | | IH 94 EW | | | | | | | | | | | | | |
| | | | 170EW+00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1 |
| | | SUBTOTALS | | -- | -- | 1 | -- | 1 | 1 | -- | -- | -- | -- | 1 | 1 |
| 1000 | 4 | IH 894/ USH 45 NS | | | | | | | | | | | | | |
| | | | 766GE+00 | -- | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- |
| | | SUBTOTALS | | -- | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- |
| 1000 | 5 | IH 94 EW | | | | | | | | | | | | | |
| | | | 184EW+55 | -- | -- | -- | -- | -- | -- | 1 | -- | -- | -- | -- | -- |
| | | SUBTOTALS | | -- | -- | -- | -- | -- | -- | 1 | -- | -- | -- | -- | -- |
| 1000 | 6 | IH 894/ USH 45 NS | | | | | | | | | | | | | |
| | | | 235NS+84 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | | 262NS+22 | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1 | -- | -- |
| | | IH 94 EW | | | | | | | | | | | | | |
| | | | 197EW+02 | -- | -- | -- | -- | -- | -- | -- | 1 | -- | -- | -- | -- |
| | | | 201EW+39 | -- | -- | -- | -- | -- | -- | -- | -- | 1 | -- | -- | -- |
| | | SUBTOTALS | | -- | -- | -- | -- | -- | -- | -- | 1 | 1 | 1 | -- | -- |
| 1000 | 8 | RAMP SE | | | | | | | | | | | | | |
| | | | 586SE+89 | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | SUBTOTALS | | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | TOTALS | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

3

## FENCE SAFETY

| CATEGORY | ROADWAY | 616.0700.S FENCE SAFETY LF |
|---|---|---|
| 1000 | UNDISTRIBUTED | 5,000 |
| | TOTALS | 5,000 |

## MOVING SIGN BRDIGE

| CATEGORY | STAGE | ROADWAY | STATION | 636.0100* SIGN SUPPORTS CONCRETE MASONRY CY | 636.1000* SIGN SUPPORTS STEEL REINFORCEMENT HS LB | SPV.0105.0400 MOVING SIGN BRIDGE CANTILEVERED S-40-128 LS | NOTES |
|---|---|---|---|---|---|---|---|
| 1000 | 2 | IH 894 NB | 264NS+05, LT | 9 | 715 | 1 | MOVE TO STA 766GE+00, RT |
| | | TOTALS | | 9 | 715 | 1 | |

* ADDITIONAL QUANTITIES FOUND ELSEWHERE

## WORK ZONE CONSTRUCTION TRAFFIC MERGE WARNING SYSTEM

| CATEGORY | STAGE | ROADWAY | LOCATION | SPV.0045.2001 WORK ZONE CONSTRUCTION TRAFFIC MERGE WARNING SYSTEM DAY |
|---|---|---|---|---|
| 1000 | 2 | USH 45 NB | NORTH LEG | 106 |
| | 3A/3B | USH 45 NB | NORTH LEG | 121 |
| | | USH 894/USH 45 SB | SOUTH LEG | 121 |
| | | IH 94 EB | EAST LEG | 121 |
| | | IH 94 WB | WEST LEG | 121 |
| | 4A/4B | IH 94 EB | EAST LEG | 57 |
| | | IH 94 WB | WEST LEG | 57 |
| | 5 | IH 94 EB | WEST LEG | 81 |
| | 6A/6B | IH 94 WB | WEST LEG | 165 |
| | 7 | USH 894/USH 45 NB | SOUTH LEG | 88 |
| | | USH 894/USH 45 SB | SOUTH LEG | 88 |
| | | IH 94 WB | WEST LEG | 88 |
| | | SUBTOTALS | | 1214 |
| | | UNDISTRIBUTED | | 100 |
| | | TOTALS | | 1314 |

## TRAFFIC CONTROL CLOSURE ITEMS

| CATEGORY | ROADWAY | SPV.0060.0400 TRAFFIC CONTROL CLOSE-OPEN FREEWAY ENTRANCE RAMP EACH | SPV.0060.0401 TRAFFIC CONTROL CLOSE-OPEN FREEWAY TO FREEWAY SYSTEM RAMP EACH | SPV. 0060.0402 TRAFFIC CONTROL INTERIM FREEWAY LANE CLOSURE EACH | SPV. 0060.0403 TRAFFIC CONTROL LOCAL ROAD LANE CLOSURES EACH | SPV. 0060.0408 TRAFFIC CONTROL FULL FREEWAY CLOSURE EACH |
|---|---|---|---|---|---|---|
| 1000 | VARIOUS | 1,200 | 900 | 3,400 | 250 | 420 |
| | TOTALS | 1,200 | 900 | 3,400 | 250 | 420 |

4

Addendum No. 04
ID 1060-33-81
Revised Sheet 1837
September 23, 2015

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | MISCELLANEOUS QUANTITIES | SHEET: 1837 | E |
|---|---|---|---|---|---|

FILE NAME : W:\Cadd\Final\10603381_Z2\Roads\cds\030204_mq_tc.ppt PLOT DATE : 9/22/2015 2:16:40 PM PLOT BY : MSCCEJ PLOT NAME : 030204_mq_tc8 PLOT SCALE : 1:1

Addendum No. 04
ID 1060-33-81
Deleted Sheet 1904
September 23, 2015

3

3

ITS REMOVALS

| CATEGORY 1300 ROADWAY | ITEM | DESCRIPTION | STATION | OFFSET | 204.0195* REMOVING CONCRETE BASES EACH | 204.0210 REMOVING MANHOLES EACH | 653.0905 REMOVING PULL BOXES EACH | 676.9001.S REMOVING ADVANCE FLASHER ASSEMBLIES TYPE 1 EACH | 677.9051.S REMOVING 50-FT CAMERA POLE EACH | 677.9200.S REMOVING CCTV CAMERA EACH | SPV.0060.2002 REMOVING RAMP CONTROL SIGNAL ASSEMBLY SIDEMOUNT EACH | SPV.0060.2003 REMOVING CONTROLLER CABINET EACH | SPV.0060.2004 REMOVING CONTROLLER CABINET BASE EACH | SPV.0060.2005 REMOVING CONTROLLER RAMP METER PROCESSOR ASSEMBLY EACH | SPV.0060.2006 REMOVING ELECTRICAL SERVICE METER BREAKER PEDESTAL EACH | SPV.0060.2007 REMOVING COMMUNICATION VAULT EACH | SPV.0060.2009 REMOVING MICROWAVE DETECTOR ASSEMBLY EACH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IH 894/IH 94/USH 45 | | | | | | | | | | | | | | | | | |
| | EXCCTV-40-0034 | CCTV | 202NS+04 | 116' LT | -- | -- | -- | -- | 1 | 1 | -- | -- | -- | -- | -- | -- | -- |
| | EXMH2401 | MANHOLE | 228NS+83 | 110 'RT | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXMH2402 | MANHOLE | 231NS+78 | 142 'RT | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXCV2401 | COMMUNICATION VAULT | 238NS+14 | 107 'RT | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1 | -- |
| | EXPB2401 | PULL BOX | 234NS+50 | 102 'RT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB2402 | PULL BOX | 234NS+50 | 63 'RT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXMD2401 | MICROWAVE DETECTOR | 231NS+75 | 65' LT | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1 |
| | EXMB2401 | METER BREAKER | 235NS+10 | 119' LT | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1 | -- | -- |
| | EXCB-DMS-40-0015 | CONTROL CABINET | 237NS+71 | 116' LT | -- | -- | -- | -- | -- | -- | -- | -- | 1 | -- | -- | -- | -- |
| | EXCB-SDS-40-0017 | CONTROL CABINET | 231NS+60 | 68' LT | -- | -- | -- | -- | -- | -- | -- | 1 | 1 | -- | -- | -- | -- |
| | EXMD12GCT | MICROWAVE DETECTOR | 241NS+74 | 99' LT | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB12GCT | PULL BOX | 241NS+94 | 97' LT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB13GCT | PULL BOX | 243NS+08 | 103' LT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB16GCT | PULL BOX | 246NS+10 | 115' LT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB18GCT | PULL BOX | 248NS+16 | 139' LT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB18GCT-1 | PULL BOX | 248NS+21 | 97' LT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXSB18GCT | SIGNAL BASE | 248NS+20 | 136' LT | 1 | -- | -- | -- | -- | -- | 1 | -- | -- | -- | -- | -- | -- |
| | EXSB18GCT-1 | SIGNAL BASE | 248NS+25 | 99' LT | 1 | -- | -- | -- | -- | -- | 1 | -- | -- | -- | -- | -- | -- |
| | EXPB19GCT | PULL BOX | 249NS+17 | 148' LT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB256NS | PULL BOX | 256NS+57 | 208 'RT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB258NS | PULL BOX | 258NS+33 | 185 'RT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB259NS | PULL BOX | 259NS+05 | 155 'RT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB260NS | PULL BOX | 259NS+23 | 190 'RT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXSBGA-1 | SIGNAL BASE | 259NS+01 | 162 'RT | 1 | -- | -- | -- | -- | -- | 1 | -- | -- | -- | -- | -- | -- |
| | EXSBGA-2 | SIGNAL BASE | 259NS+15 | 192 'RT | 1 | -- | -- | -- | -- | -- | 1 | -- | -- | -- | -- | -- | -- |
| | EXPB2601 | PULL BOX | 260NS+38 | 91 'RT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB261NS-1 | PULL BOX | 260NS+63 | 73 'RT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB261NS-2 | PULL BOX | 260NS+82 | 108 'RT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB2602 | PULL BOX | 260NS+88 | 61 'RT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB2603 | PULL BOX | 261NS+72 | 36 'RT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | | SUBTOTAL | | 6 | 2 | 17 | -- | 1 | 1 | 4 | 1 | 2 | -- | 1 | 1 | 1 |

*ADDITIONAL QUANTITIES FOUND ELSEWHERE

4 THIS SHEET IS OBSOLETE

| PROJECT NO: 1060-33-81 | HWY: IH 894/IH 94/USH 45 | COUNTY: MILWAUKEE | MISCELLANEOUS QUANTITIES | SHEET: 1904 | E |
|---|---|---|---|---|---|

Addendum No. 04
ID 1060-33-81
Added Sheet 1904A
September 23, 2015

3

3

## ITS REMOVALS

CATEGORY 1300

| ROADWAY | ITEM | DESCRIPTION | STATION | OFFSET | 204.0195* REMOVING CONCRETE BASES EACH | 204.0210 REMOVING MANHOLES EACH | 653.0905 REMOVING PULL BOXES EACH | 676.9001.S REMOVING ADVANCE FLASHER ASSEMBLIES TYPE 1 EACH | 677.9051.S REMOVING 50-FT CAMERA POLE EACH | 677.9200.S REMOVING CCTV CAMERA EACH | SPV.0060.2002 REMOVING RAMP CONTROL SIGNAL ASSEMBLY SIDEMOUNT EACH | SPV.0060.2003 REMOVING CONTROLLER CABINET EACH | SPV.0060.2004 REMOVING CONTROLLER CABINET BASE EACH | SPV.0060.2005 REMOVING CONTROLLER RAMP METER PROCESSOR ASSEMBLY EACH | SPV.0060.2006 REMOVING ELECTRICAL SERVICE METER BREAKER PEDESTAL EACH | SPV.0060.2007 REMOVING COMMUNICATION VAULT EACH | SPV.0060.2009 REMOVING MICROWAVE DETECTOR ASSEMBLY EACH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IH 894/IH 94/USH 45 | | | | | | | | | | | | | | | | | |
| | EXCV05 | COMMUNICATION VAULT | 260NS+71 | 206 'RT | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1 | -- |
| | EXMH03 | MANHOLE | 261NS+49 | 75 'RT | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXMD3101 | MICROWAVE DETECTOR | 102EW+96 | 69 'RT | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1 |
| | EXMD3102 | MICROWAVE DETECTOR | 103EW+11 | 70' LT | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1 |
| | EXPB3101 | PULL BOX | 103EW+02 | 67' LT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXMH3101 | MANHOLE | 102EW+21 | 69' LT | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXMH3102 | MANHOLE | 102EW+21 | 69 'RT | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB3102 | PULL BOX | 102EW+95 | 65 'RT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXMB3201 | METER BREAKER | 113EW+22 | 126' LT | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1 | -- | -- |
| | EXCB-CCTV-40-0006 | CONTROL CABINET | 113EW+21 | 121' LT | -- | -- | -- | -- | -- | -- | -- | 1 | 1 | -- | -- | -- | -- |
| | EXPB3201 | PULL BOX | 113EW+34 | 66' LT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB3202 | PULL BOX | 113EW+22 | 116' LT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXMH3201 | MANHOLE | 113EW+25 | 71 'RT | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXMH3202 | MANHOLE | 113EW+29 | 69' LT | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXCCTV-40-0006 | CCTV | 113EW+42 | 66' LT | -- | -- | -- | -- | 1 | 1 | -- | -- | -- | -- | -- | -- | -- |
| | EXCB3201 | CONTROL CABINET | 122EW+52 | 124' LT | -- | -- | -- | -- | -- | -- | -- | 1 | 1 | -- | -- | -- | -- |
| | EXMB3202 | METER BREAKER | 120EW+56 | 183' LT | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1 | -- | -- |
| | EXMD3201 | MICROWAVE DETECTOR | 123EW+81 | 36 'RT | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1 |
| | EXPB3203 | PULL BOX | 123EW+52 | 41 'RT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB3204 | PULL BOX | 123EW+40 | 94' LT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB3205 | PULL BOX | 122EW+52 | 116' LT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXMH3301 | MANHOLE | 130EW+91 | 126' LT | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXMH3302 | MANHOLE | 130EW+93 | 17 'RT | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB3501 | PULL BOX | 170EW+12 | 184' LT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB3502 | PULL BOX | 170EW+18 | 109' LT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB3503 | PULL BOX | 168EW+34 | 79' LT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB3504 | PULL BOX | 168EW+07 | 181' LT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXMB3501 | METER BREAKER | 167EW+67 | 226' LT | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1 | -- | 1 |
| | | | SUBTOTAL | | 3 | 7 | 11 | -- | 1 | 1 | -- | 2 | 2 | -- | 3 | 1 | 4 |

*ADDITIONAL QUANTITIES FOUND ELSEWHERE

3

3

## ITS REMOVALS

| CATEGORY 1300 ROADWAY | ITEM | DESCRIPTION | STATION | OFFSET | 204.0195* REMOVING CONCRETE BASES EACH | 204.0210 REMOVING MANHOLES EACH | 653.0905 REMOVING PULL BOXES EACH | 676.9001.S REMOVING ADVANCE FLASHER ASSEMBLIES TYPE 1 EACH | 677.9051.S REMOVING 50-FT CAMERA POLE EACH | 677.9200.S REMOVING CCTV CAMERA EACH | SPV.0060.2002 REMOVING RAMP CONTROL SIGNAL ASSEMBLY SIDEMOUNT EACH | SPV.0060.2003 REMOVING CONTROLLER CABINET EACH | SPV.0060.2004 REMOVING CONTROLLER CABINET BASE EACH | SPV.0060.2005 REMOVING CONTROLLER RAMP METER PROCESSOR ASSEMBLY EACH | SPV.0060.2006 REMOVING ELECTRICAL SERVICE METER BREAKER PEDESTAL EACH | SPV.0060.2007 REMOVING COMMUNICATION VAULT EACH | SPV.0060.2009 REMOVING MICROWAVE DETECTOR ASSEMBLY EACH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IH 894/IH 94/USH 45 | | | | | | | | | | | | | | | | | |
| | EXMH3501 | MANHOLE | 190EW+74 | 325 'RT | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXMH3502 | MANHOLE | 190EW+35 | 459 'RT | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXMH3503 | MANHOLE | 190EW+52 | 495 'RT | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXMH3601 | MANHOLE | 195EW+14 | 315' LT | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB3601 | PULL BOX | 195EW+08 | 266' LT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB3602 | PULL BOX | 194EW+88 | 209' LT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB3603 | PULL BOX | 194EW+73 | 117' LT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB3604 | PULL BOX | 195EW+46 | 77' LT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXCB-SDS-40-0052 | CONTROL CABINET | 195EW+53 | 80' LT | -- | -- | -- | -- | -- | -- | -- | 1 | 1 | -- | -- | -- | -- |
| | EXPB3605 | PULL BOX | 193EW+92 | 23 'RT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB3606 | PULL BOX | 194EW+47 | 47 'RT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXMH3602 | MANHOLE | 195EW+17 | 197 'RT | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXMH3603 | MANHOLE | 195EW+27 | 247 'RT | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB3607 | PULL BOX | 195EW+37 | 197 'RT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB3608 | PULL BOX | 195EW+44 | 242 'RT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXPB3609 | PULL BOX | 201EW+40 | 58 'RT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | EXCB-SDS-40-0028 | CONTROL CABINET | 101EW+77 | 133 'RT | -- | -- | -- | -- | -- | -- | -- | 1 | 1 | -- | -- | -- | -- |
| | EXMB3101 (4) | METER BREAKER PULL BOX | 101EW+73 | 132 'RT | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1 | -- | -- |
| | EXPB3103 | | 101EW+82 | 132 'RT | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | | SUBTOTAL | | -- | 6 | 10 | -- | -- | -- | -- | 2 | 2 | -- | 1 | -- | -- |
| | | | | TOTALS | 12 | 23 | 49 | 7 | 2 | 2 | 6 | 6 | 7 | 1 | 6 | 2 | 5 |

(4)

*ADDITIONAL QUANTITIES FOUND ELSEWHERE

Addendum No. 04
ID 1060-33-81
Revised Sheet 1905
September 23, 2015

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0048 | 204.0109.S Removing Concrete Surface Partial Depth **P** | 7,771.000 SF | | . | | . |
| 0049 | 204.0110 Removing Asphaltic Surface **P** | 70,771.000 SY | | . | | . |
| 0050 | 204.0120 Removing Asphaltic Surface Milling **P** | 31,419.000 SY | | . | | . |
| 0051 | 204.0150 Removing Curb & Gutter **P** | 7,078.000 LF | | . | | . |
| 0052 | 204.0155 Removing Concrete Sidewalk **P** | 1,217.000 SY | | . | | . |
| 0053 | 204.0157 Removing Concrete Barrier **P** | 38,677.000 LF | | . | | . |
| 0054 | 204.0165 Removing Guardrail **P** | 5,614.000 LF | | . | | . |
| 0055 | 204.0170 Removing Fence **P** | 34,114.000 LF | | . | | . |
| 0056 | 204.0195 Removing Concrete Bases | 137.000 EACH | | . | | . |
| 0057 | 204.0210 Removing Manholes | 96.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0102 | 206.3000 Excavation for Structures Retaining Walls (structure) 0005. R-40-630 | LUMP | LUMP | | | . |
| 0103 | 206.3000 Excavation for Structures Retaining Walls (structure) 0006. R-40-631 | LUMP | LUMP | | | . |
| 0104 | 206.3000 Excavation for Structures Retaining Walls (structure) 0007. R-40-655 | LUMP | LUMP | | | . |
| 0105 | 209.0100 Backfill Granular | 10,157.000 CY | | . | | . |
| 0106 | 209.0200.S Backfill Controlled Low Strength | 8,743.000 CY | | . | | . |
| 0107 | 210.0100 Backfill Structure **P** | 21,152.000 CY | | . | | . |
| 0108 | 305.0110 Base Aggregate Dense 3/4-Inch | 903.000 TON | | . | | . |
| 0109 | 305.0120 Base Aggregate Dense 1 1/4-Inch | 271,829.000 TON | | . | | . |
| 0110 | 305.0135 Base Aggregate Dense 3-Inch | 389.000 CY | | . | | . |
| 0111 | 310.0115 Base Aggregate Open Graded | 2,465.000 CY | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0712 | 653.0905 Removing Pull Boxes | 50.000 EACH | | . | | . |
| 0713 | 654.0101 Concrete Bases Type 1 | 7.000 EACH | | . | | . |
| 0714 | 654.0102 Concrete Bases Type 2 | 1.000 EACH | | . | | . |
| 0715 | 654.0105 Concrete Bases Type 5 | 212.000 EACH | | . | | . |
| 0716 | 654.0110 Concrete Bases Type 10 | 4.000 EACH | | . | | . |
| 0717 | 654.0230 Concrete Control Cabinet Bases Type L30 | 6.000 EACH | | . | | . |
| 0718 | 655.0146 Cable In Duct 4-6 AWG | 4,352.000 LF | | . | | . |
| 0719 | 655.0230 Cable Traffic Signal 5-14 AWG | 1,403.000 LF | | . | | . |
| 0720 | 655.0240 Cable Traffic Signal 7-14 AWG | 2,951.000 LF | | . | | . |
| 0721 | 655.0250 Cable Traffic Signal 9-14 AWG | 1,434.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0897 | SPV.0060 Special 0308. Pvmnt Marking Contrast Grooved Pre formed Thermoplastic Arrows Type 5 **P** | 22.000 EACH | | . | | . |
| 0898 | SPV.0060 Special 0310. Pavement Marking Contrast Grooved Preformed Thermoplastic Words | 4.000 EACH | | . | | . |
| 0899 | SPV.0060 Special 0320. Install Temporary Pavement Marking Orange Arrows | 4.000 EACH | | . | | . |
| 0900 | SPV.0060 Special 0322. Truck Cleanout Of Pavement Marking Orange Epoxy | 6.000 EACH | | . | | . |
| 0901 | SPV.0060 Special 0400. Traffic Control Close-Open Freeway Entrance Ramp | 1,200.000 EACH | | . | | . |
| 0902 | SPV.0060 Special 0401. Traffic Control Close-Open Freeway To Freeway System Ramp | 900.000 EACH | | . | | . |
| 0903 | SPV.0060 Special 0402. Traffic Control Interim Freeway Lane Closure | 3,400.000 EACH | | . | | . |
| 0904 | SPV.0060 Special 0403. Traffic Control Local Road Lane Closures | 250.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0945 | SPV.0060 Special 1130. Poles Aluminum Type F | 8.000 EACH | | . | | . |
| 0946 | SPV.0060 Special 1131. Concrete Bases Type B | 104.000 EACH | | . | | . |
| 0947 | SPV.0060 Special 1153. Removing Electrical Service Meter Breaker Pedestal Lighting | 7.000 EACH | | . | | . |
| 0948 | SPV.0060 Special 2001. Ground Rod | 37.000 EACH | | . | | . |
| 0949 | SPV.0060 Special 2002. Removing Ramp Control Signal Assembly Sidemount | 6.000 EACH | | . | | . |
| 0950 | SPV.0060 Special 2003. Removing Controller Cabinet | 6.000 EACH | | . | | . |
| 0951 | SPV.0060 Special 2004. Removing Controller Cabinet Base | 7.000 EACH | | . | | . |
| 0952 | SPV.0060 Special 2005. Removing Controller Ramp Meter Processer Assembly | 1.000 EACH | | . | | . |
| 0953 | SPV.0060 Special 2006. Removing Electrical Service Meter Breaker Pedestal | 6.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 0954 | SPV.0060 Special 2007. Removing Communication Vault | 2.000 EACH | | . | | . |
| 0955 | SPV.0060 Special 2008. Install 80-ft Camera Pole | 1.000 EACH | | . | | . |
| 0956 | SPV.0060 Special 2009. Removing Microwave Detector Assembly | 5.000 EACH | | . | | . |
| 0957 | SPV.0060 Special 2010. Installl Portable Video Surveillance System | 1.000 EACH | | . | | . |
| 0958 | SPV.0060 Special 2011. Relocating Portable Video Surveillance System | 4.000 EACH | | . | | . |
| 0959 | SPV.0060 Special 2012. Install Temporary Vehicle Detector Assembly | 7.000 EACH | | . | | . |
| 0960 | SPV.0060 Special 2013. Refocusing Vehicle Detector Assembly | 57.000 EACH | | . | | . |
| 0961 | SPV.0060 Special 2014. Removing Temporary Vehicle Detector Assembly | 18.000 EACH | | . | | . |
| 0962 | SPV.0060 Special 2015. Relocating Temporary Vehicle Detector Assembly | 6.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1124 | SPV.0090 Special 4411. Fence Decorative Hast Wall Mounted | 232.000 LF | | . | | . |
| 1125 | SPV.0090 Special 4415. Piling Sleeves | 2,407.000 LF | | . | | . |
| 1126 | SPV.0090 Special 4420. Foundation Drilling Special | 5,495.000 LF | | . | | . |
| 1127 | SPV.0090 Special 4425. Wall Secant Pile 47. 24-Inch | 1,680.000 LF | | . | | . |
| 1128 | SPV.0090 Special 4430. Drilled Foundation Shaft 59.06-Inch | 915.000 LF | | . | | . |
| 1129 | SPV.0090 Special 4450. Removing Temporary Shoring Left In Place | 622.000 LF | | . | | . |
| 1130 | SPV.0090 Special 4455. Fence Chain Link Vinyl Coated 2.75-Ft | 31.000 LF | | . | | . |
| 1131 | SPV.0090 Special 4460. Piling CIP Concrete 16 X 0.5-Inch Special B-40-869 | 1,705.000 LF | | . | | . |
| 1132 | SPV.0090 Special 4465. Piling CIP Concrete 16 X 0.5-Inch Special B-40-870 | 2,400.000 LF | | . | | . |
| 1133 | SPV.0090 Special 4470. Piling Steel HP 14-Inch X 73 Lb Special B-40-882 | 1,300.000 LF | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1210 | SPV.0195 Special 0120. HMA Longitudinal Joint Repair | 40.000 TON | | . | | . |
| 1211 | SPV.0195 Special 0700. Management Of Solid Waste | 3,097.000 TON | | . | | . |
| 1212 | SPV.0195 Special 0801. Soil Drying Agent | 20,300.000 TON | | . | | . |
| 1334 | 630.0171 Seeding Mixture No. 70A | 439.000 LB | | . | | . |
| 1335 | 550.2148 Piling CIP Concrete 14 X 0.50-Inch | 1,395.000 LF | | . | | . |
| 1336 | SPV.0105 Special 0050. Partially Removing Existing Drilled Shafts | LUMP | LUMP | | | . |
| 1337 | SPV.0105 Special 0055. Seeding Establishment | LUMP | LUMP | | | . |
| 1338 | SPV.0120 Special 0001. Seeding Water | 16,627.000 MGAL | | . | | . |
| 1339 | SPV.0060 Special 0430. Maintaining and Removing Crash Cushion | 33.000 EACH | | . | | . |
| | SECTION 0001 TOTAL | | | | | . |

SECTION 0002 B-40-786 (Option A)
ALT GROUP AA1

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1213 | 206.1000 Excavation for Structures Bridges (structure) 0001. B-40-786 | LUMP | LUMP | | | . |
| 1214 | 209.0100 Backfill Granular | 24.000 CY | | . | | . |
| 1215 | 502.0100 Concrete Masonry Bridges **P** | 812.000 CY | | . | | . |
| 1216 | 505.0405 Bar Steel Reinforcement HS Bridges | 260,690.000 LB | | . | | . |
| 1217 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 190,360.000 LB | | . | | . |
| 1218 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 7.000 EACH | | . | | . |
| 1219 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 7.000 EACH | | . | | . |
| 1220 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 28.000 HRS | | . | | . |
| 1221 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 523.000 LF | | . | | . |
| | SECTION 0002 TOTAL | | | | | . |

SECTION 0003 B-40-786 (Option B)
ALT GROUP AA2

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1222 | 206.1000 Excavation for Structures Bridges (structure) 0001. B-40-786 | LUMP | LUMP | | | . |
| 1223 | 209.0100 Backfill Granular | 62.000 CY | | . | | . |
| 1224 | 502.0100 Concrete Masonry Bridges **P** | 1,211.000 CY | | . | | . |
| 1225 | 505.0405 Bar Steel Reinforcement HS Bridges | 213,150.000 LB | | . | | . |
| 1226 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 208,610.000 LB | | . | | . |
| 1227 | 511.1200 Temporary Shoring (structure) 0001. B-40-786 | 675.000 SF | | . | | . |
| 1228 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 5,580.000 LF | | . | | . |
| 1229 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 6.000 EACH | | . | | . |
| 1230 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 6.000 EACH | | . | | . |
| 1231 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 3.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1232 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 4.000 EACH | | . | | . |
| 1233 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 4.000 EACH | | . | | . |
| 1234 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 16.000 HRS | | . | | . |
| 1235 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 311.000 LF | | . | | . |
| | SECTION 0003 TOTAL | | | | | . |

SECTION 0004 B-40-853 (Option A)
ALT GROUP BB1

| | | | | | | |
|---|---|---|---|---|---|---|
| 1236 | 206.1000 Excavation for Structures Bridges (structure) 0009. B-40-853 | LUMP | LUMP | | | . |
| 1237 | 209.0100 Backfill Granular | 40.000 CY | | . | | . |
| 1238 | 502.0100 Concrete Masonry Bridges **P** | 428.000 CY | | . | | . |
| 1239 | 505.0405 Bar Steel Reinforcement HS Bridges | 137,850.000 LB | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1240 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 100,380.000 LB | | . | | . |
| 1241 | 505.0911 Bar Couplers No. 11 | 96.000 EACH | | . | | . |
| 1242 | 511.1200 Temporary Shoring (structure) 0011. B-40-853 | 2,740.000 SF | | . | | . |
| 1243 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 5.000 EACH | | . | | . |
| 1244 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98.43-Inch | 5.000 EACH | | . | | . |
| 1245 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 20.000 HRS | | . | | . |
| 1246 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 298.000 LF | | . | | . |
| | SECTION 0004 TOTAL | | | | | . |

SECTION 0005 B-40-853 (Option B)
ALT GROUP BB2

| | | | | | | |
|---|---|---|---|---|---|---|
| 1247 | 206.1000 Excavation for Structures Bridges (structure) 0009. B-40-853 | LUMP | LUMP | | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1248 | 209.0100 Backfill Granular | 40.000 CY | | . | | . |
| 1249 | 502.0100 Concrete Masonry Bridges **P** | 559.000 CY | | . | | . |
| 1250 | 505.0405 Bar Steel Reinforcement HS Bridges | 129,440.000 LB | | . | | . |
| 1251 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 102,550.000 LB | | . | | . |
| 1252 | 505.0911 Bar Couplers No. 11 | 96.000 EACH | | . | | . |
| 1253 | 511.1200 Temporary Shoring (structure) 0011. B-40-853 | 2,740.000 SF | | . | | . |
| 1254 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 1,650.000 LF | | . | | . |
| 1255 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 2.000 EACH | | . | | . |
| 1256 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 2.000 EACH | | . | | . |
| 1257 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 1.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1258 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 4.000 EACH | | . | | . |
| 1259 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 4.000 EACH | | . | | . |
| 1260 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 16.000 HRS | | . | | . |
| 1261 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 236.500 LF | | . | | . |
| | SECTION 0005 TOTAL | | | | | . |
| SECTION 0006 B-40-854 (Option A) ALT GROUP CC1 | | | | | | |
| 1262 | 206.1000 Excavation for Structures Bridges (structure) 0010. B-40-854 | LUMP | LUMP | | | . |
| 1263 | 209.0100 Backfill Granular | 250.000 CY | | . | | . |
| 1264 | 502.0100 Concrete Masonry Bridges **P** | 2,771.000 CY | | . | | . |
| 1265 | 505.0405 Bar Steel Reinforcement HS Bridges | 435,860.000 LB | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1266 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 755,100.000 LB | | . | | . |
| 1267 | 505.0800.S Bar Steel Reinforcement HS Stainless Structures | 1,430.000 LB | | . | | . |
| 1268 | 505.0911 Bar Couplers No. 11 | 144.000 EACH | | . | | . |
| 1269 | 511.1200 Temporary Shoring (structure) 0012. B-40-854 | 3,240.000 SF | | . | | . |
| 1270 | 612.0106 Pipe Underdrain 6-Inch | 40.000 LF | | . | | . |
| 1271 | 612.0206 Pipe Underdrain Unperforated 6-Inch | 40.000 LF | | . | | . |
| 1272 | 645.0111 Geotextile Fabric Type DF Schedule A | 33.000 SY | | . | | . |
| 1273 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 14.000 EACH | | . | | . |
| 1274 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98.43-Inch | 5.000 EACH | | . | | . |
| 1275 | SPV.0060 Special 4162. Tip Testing Drilled Foundation Shaft 118.11-Inch | 9.000 EACH | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1276 | SPV.0060 Special 4181. Bar Couplers No. 18 | 210.000 EACH | | . | | . |
| 1277 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 56.000 HRS | | . | | . |
| 1278 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 364.000 LF | | . | | . |
| 1279 | SPV.0090 Special 4440. Drilled Foundation Shaft 118.11-Inch | 525.000 LF | | . | | . |
| 1280 | SPV.0105 Special 4520. Trial Drilled Foundation Shaft 118.11-Inch | LUMP | LUMP | | | . |
| | SECTION 0006 TOTAL | | | | | . |

SECTION 0007 B-40-854 (Option B)
ALT GROUP CC2

| | | | | | | |
|---|---|---|---|---|---|---|
| 1281 | 206.1000 Excavation for Structures Bridges (structure) 0010. B-40-854 | LUMP | LUMP | | | . |
| 1282 | 209.0100 Backfill Granular | 2,190.000 CY | | . | | . |
| 1283 | 502.0100 Concrete Masonry Bridges **P** | 3,938.000 CY | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1284 | 505.0405 Bar Steel Reinforcement HS Bridges | 377,110.000 LB | | . | | . |
| 1285 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 720,240.000 LB | | . | | . |
| 1286 | 505.0800.S Bar Steel Reinforcement HS Stainless Structures | 1,430.000 LB | | . | | . |
| 1287 | 505.0911 Bar Couplers No. 11 | 96.000 EACH | | . | | . |
| 1288 | 511.1200 Temporary Shoring (structure) 0012. B-40-854 | 3,240.000 SF | | . | | . |
| 1289 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 14,870.000 LF | | . | | . |
| 1290 | 612.0106 Pipe Underdrain 6-Inch | 40.000 LF | | . | | . |
| 1291 | 612.0206 Pipe Underdrain Unperforated 6-Inch | 40.000 LF | | . | | . |
| 1292 | 645.0111 Geotextile Fabric Type DF Schedule A | 33.000 SY | | . | | . |
| 1293 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 16.000 EACH | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1294 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 16.000 EACH | | . | | . |
| 1295 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 8.000 EACH | | . | | . |
| 1296 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 6.000 EACH | | . | | . |
| 1297 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 2.000 EACH | | . | | . |
| 1298 | SPV.0060 Special 4162. Tip Testing Drilled Foundation Shaft 118. 11-Inch | 4.000 EACH | | . | | . |
| 1299 | SPV.0060 Special 4181. Bar Couplers No. 18 | 70.000 EACH | | . | | . |
| 1300 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 24.000 HRS | | . | | . |
| 1301 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 207.000 LF | | . | | . |
| 1302 | SPV.0090 Special 4440. Drilled Foundation Shaft 118.11-Inch | 227.000 LF | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1303 | SPV.0105 Special 4520. Trial Drilled Foundation Shaft 118.11-Inch | LUMP | LUMP | | | . |
| | SECTION 0007 TOTAL | | | | | . |

SECTION 0008 B-40-856 (Option A)
ALT GROUP DD1

| | | | | | | |
|---|---|---|---|---|---|---|
| 1304 | 206.1000 Excavation for Structures Bridges (structure) 0011. B-40-856 | LUMP | LUMP | | | . |
| 1305 | 209.0100 Backfill Granular | 73.000 CY | | . | | . |
| 1306 | 502.0100 Concrete Masonry Bridges **P** | 2,828.000 CY | | . | | . |
| 1307 | 505.0405 Bar Steel Reinforcement HS Bridges | 325,210.000 LB | | . | | . |
| 1308 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 675,740.000 LB | | . | | . |
| 1309 | 511.1200 Temporary Shoring (structure) 0003. B-40-856 | 2,445.000 SF | | . | | . |
| 1310 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 12.000 EACH | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1311 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98.43-Inch | 2.000 EACH | | . | | . |
| 1312 | SPV.0060 Special 4162. Tip Testing Drilled Foundation Shaft 118.11-Inch | 10.000 EACH | | . | | . |
| 1313 | SPV.0060 Special 4181. Bar Couplers No. 18 | 150.000 EACH | | . | | . |
| 1314 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 48.000 HRS | | . | | . |
| 1315 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 115.000 LF | | . | | . |
| 1316 | SPV.0090 Special 4440. Drilled Foundation Shaft 118.11-Inch | 598.000 LF | | . | | . |
| | SECTION 0008 TOTAL | | | | | . |

SECTION 0009 B-40-856 (Option B)
ALT GROUP DD2

| | | | | | | |
|---|---|---|---|---|---|---|
| 1317 | 206.1000 Excavation for Structures Bridges (structure) 0011. B-40-856 | LUMP | LUMP | | | . |
| 1318 | 209.0100 Backfill Granular | 133.000 CY | | . | | . |

CONTRACT: 20150929001

PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81

FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1319 | 502.0100 Concrete Masonry Bridges **P** | 3,502.000 CY | | . | | . |
| 1320 | 505.0405 Bar Steel Reinforcement HS Bridges | 319,380.000 LB | | . | | . |
| 1321 | 505.0605 Bar Steel Reinforcement HS Coated Bridges | 649,700.000 LB | | . | | . |
| 1322 | 511.1200 Temporary Shoring (structure) 0003. B-40-856 | 2,955.000 SF | | . | | . |
| 1323 | 550.2168 Piling CIP Concrete 16 X 0.50-Inch | 7,980.000 LF | | . | | . |
| 1324 | SPV.0060 Special 4110. Pile Dynamic Analyzer (PDA) Testing | 10.000 EACH | | . | | . |
| 1325 | SPV.0060 Special 4115. Pile Dynamic Analyzer (PDA) Restrikes | 10.000 EACH | | . | | . |
| 1326 | SPV.0060 Special 4116. Case Pile Wave Analysis Program (Cap/Wap) Evaluation | 5.000 EACH | | . | | . |
| 1327 | SPV.0060 Special 4150. Drilled Foundation Shaft Base Grouting | 7.000 EACH | | . | | . |
| 1328 | SPV.0060 Special 4160. Tip Testing Drilled Foundation Shaft 98. 43-Inch | 1.000 EACH | | . | | . |

CONTRACT: 20150929001
PROJECT(S): 1060-33-81, 1060-34-82, 1060-43-81
FEDERAL ID(S): WISC 2015473, N/A, WISC 2015474

CONTRACTOR :_____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE DOLLARS | UNIT PRICE CTS | BID AMOUNT DOLLARS | BID AMOUNT CTS |
|---|---|---|---|---|---|---|
| 1329 | SPV.0060 Special 4162. Tip Testing Drilled Foundation Shaft 118. 11-Inch | 6.000 EACH | | . | | . |
| 1330 | SPV.0060 Special 4181. Bar Couplers No. 18 | 90.000 EACH | | . | | . |
| 1331 | SPV.0075 Special 4200. Obstructions Drilled Foundation Shaft | 28.000 HRS | | . | | . |
| 1332 | SPV.0090 Special 4435. Drilled Foundation Shaft 98.43-Inch | 65.000 LF | | . | | . |
| 1333 | SPV.0090 Special 4440. Drilled Foundation Shaft 118.11-Inch | 355.000 LF | | . | | . |
| | SECTION 0009 TOTAL | | | | | . |
| | TOTAL BID | | | | | . |

# Wisconsin Department of Transportation

**Division of Transportation Systems Development**
Bureau of Project Development
4802 Sheboygan Avenue, Rm 601
P O Box 7916
Madison, WI 53707-7916

Telephone: (608) 266-1631
Facsimile (FAX): (608) 266-8459

September 25, 2015

**NOTICE TO ALL CONTRACTORS:**

**Proposal #01: 1060-33-81, WISC 2015 473**
**Zoo IC – Zoo Interchange Phase 2**
**Lincoln – Bluemound, 121st to 70th**
**USH 45**
**Milwaukee County**

**1060-34-82**
**Zoo IC – IH 894 NB Auxiliary Lane**
**Oklahoma Ave to National Ave**
**IH 894**
**Milwaukee County**

**1060-43-81, WISC 2015 474**
**East West Freeway**
**Underwood Cr Prkwy & 121st St Brdg**
**IH 94**
**Milwaukee County**

**Letting of September 29, 2015**

This is Addendum No. 05, which provides for the following:

**Special Provisions**

| **Deleted** Special Provisions | |
|---|---|
| Article No. | Description |
| 103 | Seeding |

The responsibility for notifying potential subcontractors and suppliers of these changes remains with the prime contractor.

Sincerely,

*Mike Coleman*

Proposal Development Specialist
Proposal Management Section

END OF ADDENDUM